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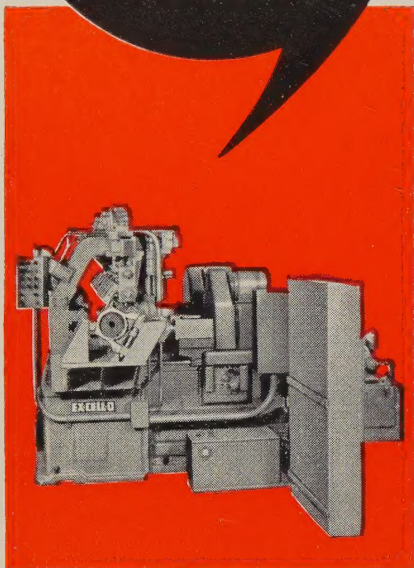
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STEEL, the metalworking weekly, is selectively distributed without charge to qualified management personnel with administrative, production, engineering, or purchasing functions in U. S. metalworking plants employing 20 or more. Those unable to qualify, or those wishing home delivered copies, may purchase copies at these rates: U. S. and possessions and Canada, \$10 a year; all other countries, \$20 a year; single copies, 50 cents. Metalworking Yearbook issue, \$2. Published every Monday and copyright 1958 by Penton Publishing Co., Penton Bldg., Cleveland 13, Ohio. Accepted as controlled circulation publication at Cleveland, Ohio.

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behind the scenes



Sheweth How One Maketh Iron

In the ever present possibility that you may be summoned to appear on a television quiz show, and in the added event that you might be asked to name the year in which the British Parliament passed the Townshend Acts, we would like to be of help: The year was 1767. What were the Townshend Acts? One of them had something to do with tea, which wound up in Boston harbor, but we don't care to talk about tea. Our subject is the Encyclopedia Britannica, hereinafter referred to as E.B., because if you were typing this, you'd think of a way to avoid typing it over and over again, too. Why, even when it's right, it looks wrong.

What was going on in 1767? Colonists were cursing Parliament. Parliament was scolding colonists. George Washington was 35 years old, and the prototypes of the editors of STEEL were attempting to describe to readers of the E.B. how iron and steel were made ten years before the American Revolution.

Considering those preliminary entries as evidence, neither the editors of E.B. nor their metallurgical correspondents appeared to be sure of what actually occurred when iron ore was reduced. Moreover, the report from the first edition, vol. 2, p. 133, of the E.B. on the subject "To separate iron from its ores," sounds more like an extract from an alchemist's diary than a scientific treatise.

The E.B. boys are aware of this, though. Make no mistake about it, they are on their toes at all times. The University of Chicago Press will soon publish a book about the history of E.B. on its 190th anniversary. Its author, Herman Kogan, uncovered the early reference to iron and steelmaking, and before you could say "Decrepitation of sea-salt in a crucible" three times, a New York public relations consultant, Ray Josephs, shot a letter to STEEL.

"Here's some hot stuff," said Joe, in effect. "It should make a really unusual feature."

Well, Joe, we mentioned the E.B., and its 190th anniversary, and the book about its history, so can we go now?

On The Ruble Standard

The letter was addressed to Editor-in-Chief Irwin Such, so he gave it to Editor Walt Campbell, and he gave it to Associate Managing Editor John Morgan, and he gave it to Assistant Editor Glenn Canary, and he gave it back to Morgan, and he gave it to Assistant Editor Eileen Cortes, and she gave it to Shrdlu. Such was really too busy to pay it too much attention because he was in the process

of digesting his recent trip to Russia. As a matter of fact, when we inquired about the letter, he was studying a brand new ruble note.

"According to the official commercial exchange rate established by the Russians," he explained, "it is worth 25 cents. If you can get a travel visa to Russia, you will be given 10 rubles for every dollar. However, in the Free World market, the ruble is worth 2.6 cents. The minimum wage per month is about 350 rubles, but in a strategic industry like steel, the minimum is 750 to 800 rubles. Some get as much as 2600."

"\$650 a month! Why, Gen. Robert E. Lee never earned that much."

"Yes, but General Lee didn't have to pay 700 rubles for a pair of shoes, 1600 for a suit, 1950 for a 10-in. television set, or 1150 for a small table radio."

"They didn't have radio and TV in those days—Wait! Don't throw that Russian dictionary! We'll go quietly."

Book Reviewer Jumps in Lake?

A somber looking book fell on our desk one day last week (*Mathematical Programming*, by Nyles V. Reinfeld and William R. Vogel—which may or may not be German for N. V. Clearfield and Bill Bird). Clearfield—or, rather, Reinfeld is of particular interest to us because he has contributed many articles to STEEL. Having established the connection, we settled down to examine his book and got lost in the first chapter because it was all about the distribution method for solving mathematical programming problems. We skipped from Vogel's approximation method to the relation of Simplex to distribution, and then stood at attention for 2 minutes to honor the authors, and, incidentally, to recover our bearings.

While we stood, lost in thought, we considered the two marathon swimmers, Eustace and Franklin, who practiced their art in a mountain lake. They plunged in from opposite banks and swam at constant speed, but one was faster because he had webbed feet. On the first crossing they passed each other 720 yd from one bank. At the completion of the passage, each rested 4 minutes, then started back. This time they passed each other 400 yd from the other shore. Who had the webbed feet? How old was Franklin's mother? What was the temperature of the water? How wide was the lake? (One right answer out of four will earn you a pat on the head and a gold star.)

Shrdlu

(Metalworking Outlook—Page 49)

STEEL



WHAT BUT A BELT CONVEYOR could carry this load for so few pennies a ton?

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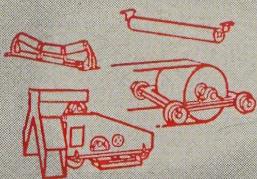
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most comprehensive idler line—plus a broad range of pulleys, drives, terminal machinery and auxiliary equipment. Because all drawings and equipment come from one source, responsibility is centralized . . . no need to waste valuable engineering man-hours coordinating drawings from several sources.



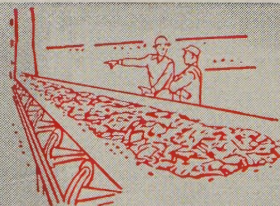
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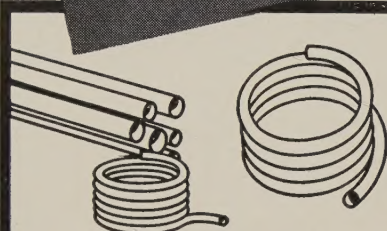


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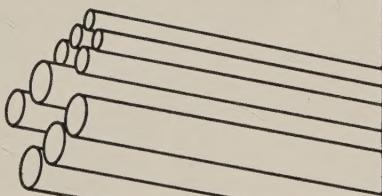


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LETTERS TO THE EDITORS

Tax Structure Strangles Lifeline

Your article, "Plating Sales Are Slow" (July 7, Page 37) was nicely written but missed one of the most glaring and vexing problems of our industry: Government competition tied in with an inequitable tax structure which is strangling the job plater's lifeline.

Missing, too, was the ramification of prime and subcontractors' abuses of the Small Business Act on the job plating industry—not to mention many other woes which are contributing to the failures in our trade.

It is true that a few of our job shops have contributed to their own misfortunes. It is equally true that our present tax system has, in many instances, contributed much to these failures.

P. Peter Kovatis

Executive Secretary
National Association of Metal Finishers
Cedar Grove, N. J.

Why Print Packaging Article?

I would like two copies of the article, "Industry Takes New Look at Packaging" (July 14, Page 72). I would also be interested to know why you happened to run this article.

Bryant W. Langston

President
Samuel M. Langston Co.
Camden, N. J.

• We ran the story because of the steadily growing importance of packaging for industrial products. We have carried many such articles over the last two decades. The most important major ones recently include: Dec. 23, 1957, Page 80; May 13, 1957, Page 80; Sept. 24, 1956, Page 65.

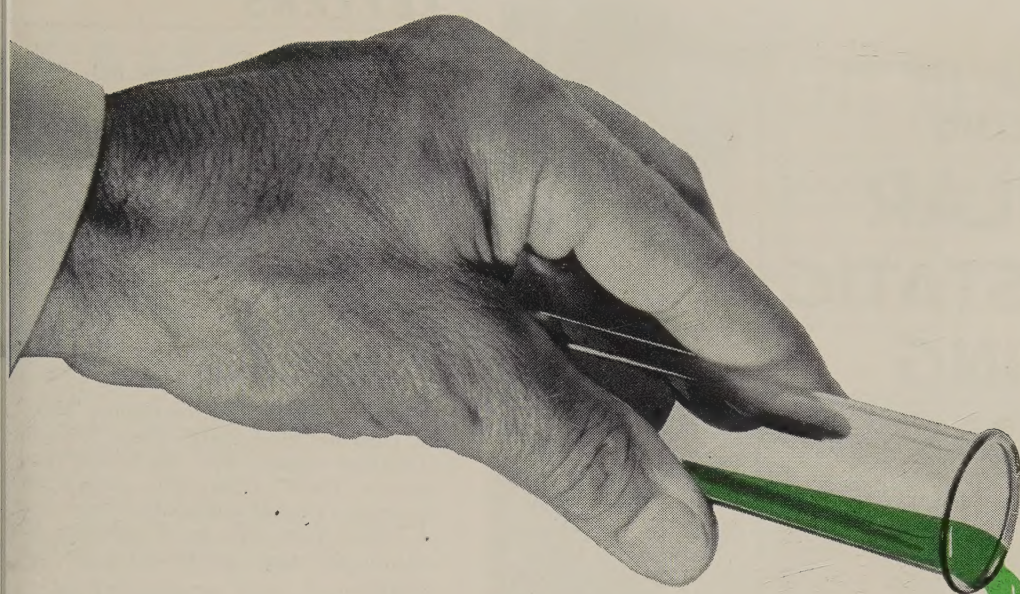
Forecasting Customer Wants



Your Program for Management article, "Finding Out What Customers Will Buy" (July 14, Page 101), is so well stated that I would appreciate having three copies—one for our general manager, one for our chief engineer, and the other for my own use.

Conception, production, and sales should parallel in some degree, at least. That is, there should be a reason for the new development; it should be produced in sufficient volume to fill wants; and sales should know not only who wants it

(Please turn to Page 12)

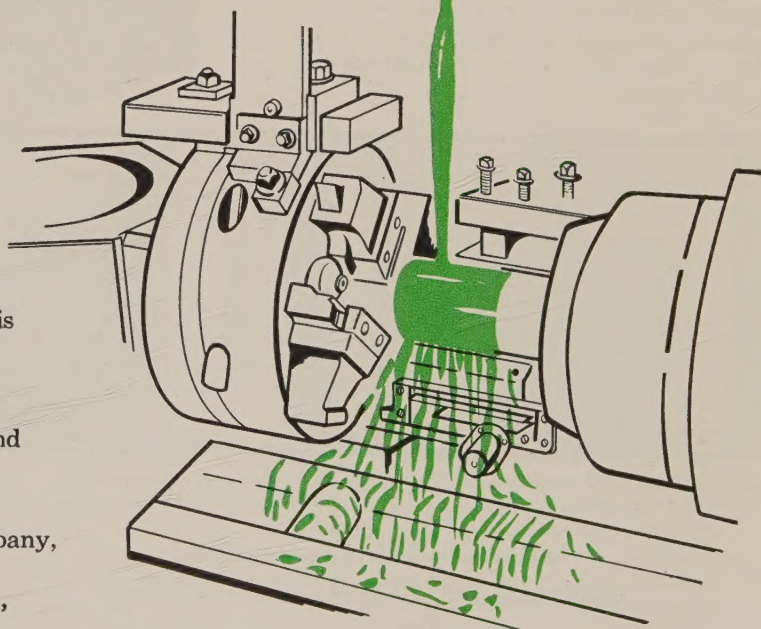


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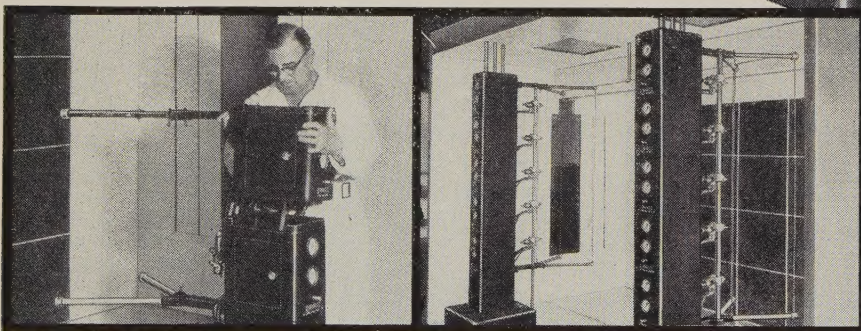
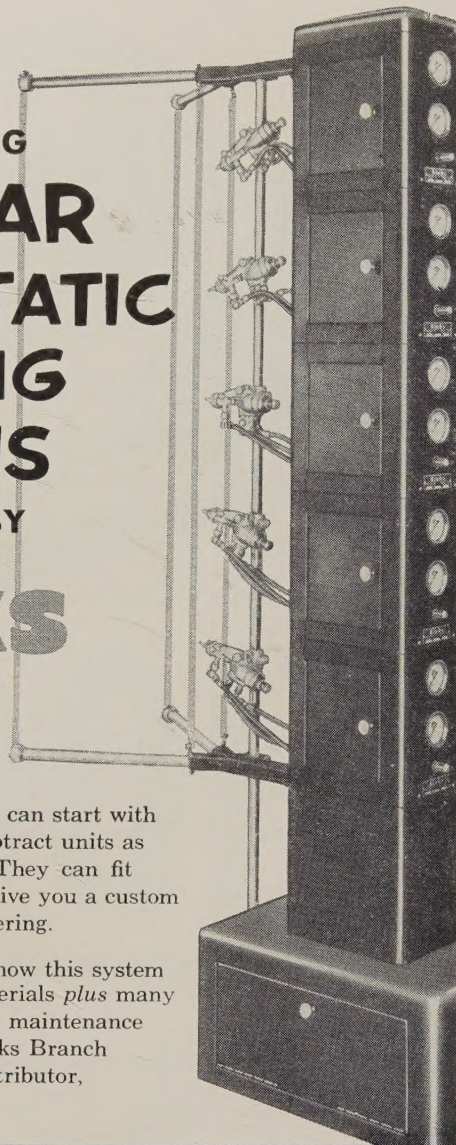


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LETTERS

(Concluded from Page 10)

but how much.

This article goes a long way toward telling the various means of obtaining such necessary information.

Thank you for compiling it.

J. C. L. Brown

Sales Manager
Machinery Div.
Gardner Machine Co.
Beloit, Wis.

Request from Germany

In your June 9 issue, the reports, "Process Upgrades Steel Parts" (Page 90) and "Electrical Steels: How To Choose and Improve Them" (Page 116), caught my attention. I would appreciate three copies of each. They will be of valuable assistance to many an executive in our company.

Martin A. Vetter

Deutsche Edelstahlwerke Aktiengesellschaft
Krefeld, Germany

Titanium in Space Age

We have read your article, "Titanium Gets Ready for Space Age" (July 14, Page 116). It is interesting, and we would like a reprint.

Milton Gallup

Chief Engineer
G. O. Carlson Inc.
Thorndale, Pa.

Article Interests P.A.

The article, "Stalelated? Try This Move" (June 30, Page 60), is interesting. I would appreciate a reprint.

J. F. Byrne

Project Purchasing Agent
Columbia-Geneva Steel Div.
United States Steel Corp.
San Francisco

Nonaging Steel Nearer

In the July 7 issue is the article, "Remedies for Steel 'Aging' Closer" (Page 38). May we have five copies?

L. J. Bednarczyk

Director of Purchasing
Ingersoll Products Div.
Borg-Warner Corp.
Chicago

Query from England

We would be grateful for further details on the work on ductile molybdenum by Poole and Nachtman, as described in your Technical Outlook of May 26 (Page 99).

D. Whale

Department of Technical Information
Tube Investments Ltd.
Birmingham, England

• We suggest you get a copy of the patent, No. 2,834,671, from the U. S. Patent Office, Washington, or contact the patent holders: H. Gordon Poole (Head, Department of Metallurgy, Colorado School of Mines, Golden, Colo.) or J. S. Nachtman (Consulting Engineer, 2801 Quebec St. N. W., Washington, D. C.)

CALENDAR OF MEETINGS

Aug. 11-14, Society of Automotive Engineers: National west coast meeting, Ambassador Hotel, Los Angeles. Society's address: 485 Lexington Ave., New York 17, N. Y. Secretary: John A. C. Warner.

Aug. 19-22, American Institute of Electrical Engineers: Pacific general meeting, Hotel Senator, Sacramento, Calif. Institute's address: 33 W. 39th St., New York 18, N. Y. Secretary: N. S. Hibshman.

Aug. 19-22, Western Electronic Show & Convention: Pan-Pacific Auditorium, Los Angeles. Information: WESCON, 1435 S. LaCienega Blvd., Los Angeles 35, Calif.

Sept. 7-12, American Chemical Society: National chemical exposition and conference, International Amphitheatre, Chicago. Society's address: 1155 16th St. N.W., Washington 6, D. C. Executive secretary: Alden H. Emery.

Sept. 8-11, Society of Automotive Engineers: Farm, construction, and industrial machinery meeting, production forum and engineering display, Milwaukee Auditorium, Milwaukee. Society's address: 485 Lexington Ave., New York 17, N. Y. Secretary: John A. C. Warner.

Sept. 10-11, American Die Casting Institute: Annual meeting, Edgewater Beach Hotel, Chicago. Institute's address: 366 Madison Ave., New York 17, N. Y. Secretary: David Laine.

Sept. 11-12, Refractories Institute: Fall meeting, Broadmoor Hotel, Colorado Springs, Colo. Institute's address: 1801 First National Bank Bldg., Pittsburgh 22, Pa. Executive secretary: Avery C. Newton.

Sept. 14-19, Instrument Society of America: Annual instrument-automation conference and exhibit, Convention Hall, Philadelphia. Society's address: 313 Sixth St., Pittsburgh 22, Pa. Executive director: William H. Kushnick.

Sept. 16-18, Electronic Industries Association: Fall meeting, St. Francis Hotel, San Francisco. Association's address: 1721 DeSales St. N.W., Washington 6, D. C. Secretary: James D. Secrest.

Sept. 17-19, National Industrial Conference Board Inc.: General marketing conference, Waldorf-Astoria Hotel, New York. Board's address: 460 Park Ave., New York 22, N. Y. Secretary: Herbert S. Briggs.

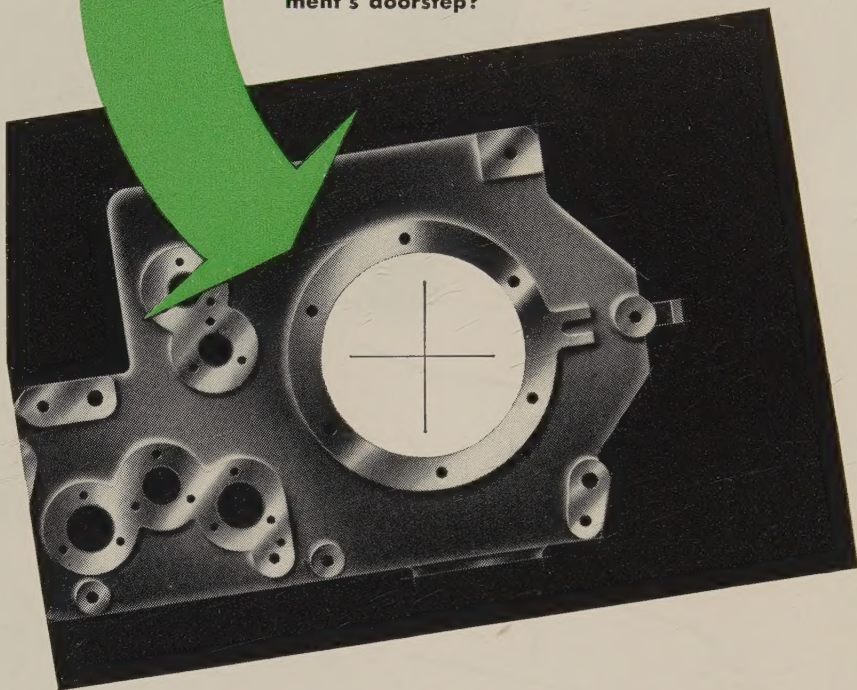
Sept. 22-23, Steel Founders' Society of America: Fall meeting, Homestead, Hot Springs, Va. Society's address: 606 Terminal Tower, Cleveland 13, Ohio. Executive vice president: F. Kermit Donaldson.

MANAGEMENT BLIND SPOT?

This bore looks perfectly acceptable. It checks okay. And yet this piece will be scrapped at assembly testing.

What's wrong?

And why — in the final analysis — will responsibility for the trouble end up at management's doorstep?



Other pieces with bores just like this one will find their way to the scrap pile, too . . . and many of those that don't will reach customers only to fail before their time — all because the gages that check them are providing **only a half-truth**. Nothing wrong with the gages themselves.

Trouble is, they are the wrong gages!

But it's been company policy that all bores should be checked with simple plug gages (which was all right before tolerances tightened). As a result, a critical out-of-round condition which is causing a poor fit between bore and shaft goes undetected, because these simple non-indicating gages **can't show it**. They were never designed to.

Only Indicating Gages can show conditions (out-of-round, taper, ovality, etc.) *as well as size* — in other words, give the **whole truth**. And although this company's management doesn't realize it, they are paying up right now for *not having indicating gages*. It won't be long before this policy blind spot eats into profits through customer dissatisfaction and lost sales.

Perhaps when the scrap figures reach the front office and the facts are sifted, management will decide to have a new look at its gaging policy. When it does, the job will be made easier . . . much easier . . . by calling in a Federal representative, a specialist who can show them, and you, where to get the most for your gaging dollar by having the **right type** of gage at the right spot. If you don't need an Indicating Gage, he'll say so. If you do, he can introduce you to the most complete and highly respected line of Indicating Gages available.

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Metalworking Outlook

STEEL

August 4, 1958

Common Ground for Auto Pact?

Pensions and SUB will probably be the points on which the auto companies and the United Auto Workers can finally get together on a contract. More than 90,000 UAW members have received pension benefits so far, and retirements are running at a rate of almost 1000 a month. GM, Ford, and Chrysler stopped contributing 5 cents per man per hour to SUB funds on June 1 because they had reached maximum funding positions required by their contracts. That will be a nest egg the companies can play with if they want to fatten SUB. The Big Three have saved \$8 million in cost-of-living and annual improvement raises that haven't been paid since contracts expired two months ago.

GE Starts To Bargain Sept. 2

General Electric Co. and the International Union of Electrical Workers start negotiating Sept. 2 on nonwage matters. Significance: GE, considered by many experts as one of the most successful negotiators on the management side, warns that it will take a strike rather than yield to IUE demands for a guaranteed annual wage. This will be the third time the union has asked for a layoff pay plan. It wants a guaranteed annual wage equal to 80 per cent of takehome pay or 65 per cent of gross pay, whichever is larger. The GE-IUE contract is a five-year pact with two years to run. An automatic wage increase of at least 5 cents will go into effect this fall.

Democrats Want More Defense Spending

Democratic leaders continue to demand increased defense spending because of the Lebanon crisis, but President Eisenhower stands firm against them. While legislation to boost our Strategic Air Command by 13 new B-52s and more K-135 tankers has been passed by the Senate, Defense Secretary Neil McElroy says the Pentagon will not "necessarily" spend money granted it in excess of the President's request.

Aluminum Imports Hurt

Domestic aluminum producers cite these cases of how their industry is being hurt by imports of lower priced European mill products: 1. By early next year, up to half the screw machine rods used in the U. S. will be imported. 2. Aluminum cigar tubes are supplied almost entirely by foreign sources. 3. Foil laminators are turning to Europe for supplies. 4. More coiled sheets and sheet circles are being brought into the U. S. Producers say these imports have increased at a time when normal demand is down. That has forced the industry to lower output of pig to around 70 per cent of capacity (see Page 144).

Rail Prospects Brighten

After ironing out differences in conference, both houses of Congress last week were expected to pass legislation aiding the nation's railroads. The new law

Metalworking

Outlook

(STEEL, June 23, p. 47) offers up to \$500 million in federally guaranteed loans for capital equipment and maintenance; allows rails to ask the ICC, rather than state agencies, for the right to stop unprofitable passenger service; sets up new lines for the ICC to follow in rate cases; and tightens rules regulating rail competitors.

Detroit Saves Money on Equipment

Machine tool builders are watching their best customer, the automotive industry, turn to its vast supply of used machines for more of its equipment needs. The line for Chevrolet's engine incorporates a host of rebuilt and retooled equipment, only a handful of new machines. Ford's 6-cylinder engine block will be turned out on a transfer line adapted from a V-8 line at the company's Lima, Ohio, plant. GM has a long list of "surplus" machines that could be converted to new jobs. And watch for intraindustry shopping — De Soto reportedly sold some machines to Chevrolet. That all means builders will be doing more rebuilding and retooling—and competing with many tool and die shops and other job shops for the business.

Electronic Refrigeration Coming?

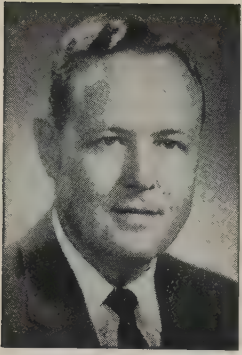
When a current is passed through the junction of two dissimilar metals, a cooling effect occurs in the junction. When the current is reversed, the junction exhibits a heating effect. Westinghouse takes advantage of this principle, first discovered by the French in 1834, for electronic refrigeration, doing away with the size and weight of compressors, motors, and cooling coils used for conventional refrigeration. Westinghouse says it is "not necessarily planning to market products" using this principle, but it does "foresee the day, not too far in the future, when this kind of cooling will replace the conventional compressor as a coldmaker."

Space Phenomenon Aids Unusual Alloys

The Air Force soon may turn to a space phenomenon to solve an earthly problem. Air Research & Development Command scientists now use a technique similar to meteorite collisions in space to produce unusual metal alloy combinations. Called micrometeorite bombardment, the terrific heat and speed permit combining materials incompatible in their solid state. Aluminum and iridium can be combined in this way to produce an alloy with the characteristics of aluminum, plus the high temperature properties of iridium.

Straws in the Wind

A report by a Senate Judiciary subcommittee favors doing away with patents as a system of "a bygone era" . . . Radio Corp. of America and the Army have developed "electronic earmuffs" for combat troops. They're designed to create artificial quiet amid the roar of battle . . . Mesta Machine Co. employees have again rejected unions in a representation vote . . . U. S. Steel Corp. reiterated last week: No change in its steel prices "at this time."



August 4, 1958

Depreciation Reform:

Weapon Against Soviets

One of the most pressing needs of our day is a more sensible tax depreciation policy on plant and equipment.

Industry has been forced to operate under outmoded tax laws dating back to the early 1930s. At the time, the government found it could increase taxable corporation income by stretching the writeoff period over 20 to 25 years.

In 1942, the U.S. Treasury's Internal Revenue Service revamped its list of depreciation allowances (Bulletin F), but the useful life of machine tools was left at about 20 years. In 1954, the Internal Revenue Act was modified to provide two options for computing depreciation: The double declining balance method and the sum of the digits method.

Some relief has resulted, but, by and large, the expedient of the thirties is still with us.

The system needs changing if for no other reason than this one cited by the Machinery & Allied Products Institute in its new study on depreciation:

"We are in deadly competition, militarily and economically, with a country that has sustained in recent years, and seems likely to sustain for some time ahead, a growth rate approximately twice our own.

"If the Soviet Union can manage to outpace us so dramatically for another decade, it will be hard to convince even our friends that the communist economic system is not the wave of the future.

"If we hope to step up our rate of progress to something near the Soviet tempo, we are going to have to provide both the financial wherewithal and the incentive for a higher rate of productive investment."

The MAPI study offers alternative proposals:

1. The use of the declining balance writeoff at three times the straight line rate.
2. The use of special initial writeoffs (25 per cent on equipment and 12.5 per cent for plant) along with the double-rate declining writeoff.

MAPI's proposals are among a dozen presented in Washington. One, described by this magazine, is the bracket system. It classifies capital equipment into groups, eliminating Bulletin F.

The multiplicity of proposals no doubt has contributed to the confusion over what should be done and may be delaying action in Congress. But complexity and the difficulty of coming up with a piece of legislation that will please a lot of people do not excuse inaction on such a vital issue.

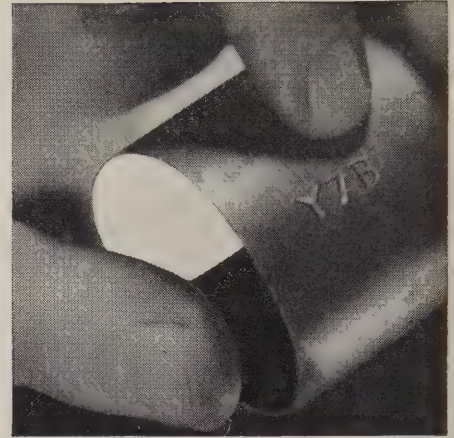
We've got to start someplace—now.

Any action must be initiated by the House Ways & Means Committee. You can help by voicing your opinions to its chairman, Rep. Wilbur D. Mills, Washington 25, D. C.

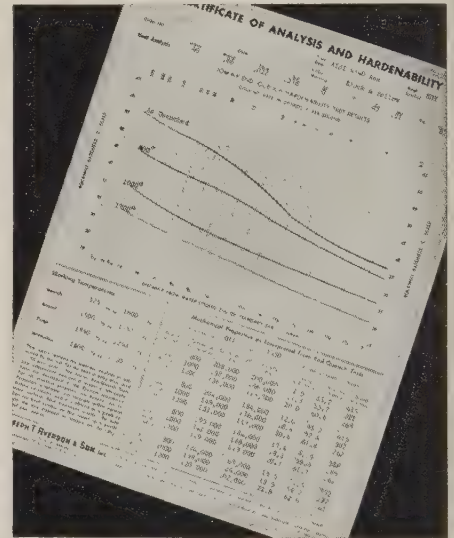
Irwin H. Such
EDITOR-IN-CHIEF



Spark testing by skilled Ryerson inspectors protects against possibility of mixed steels.



Every bar is identified by its own particular heat symbol and color marking, to indicate type of alloy.



With every shipment you receive a Certificate of Analysis and Hardenability—your complete record of the steel's characteristics, and your guide to dependable heat treatment.

How Ryerson takes the risk out of your alloy steel

Alloys from different heats can vary widely in hardenability—and as a result, vary just as widely in mechanical properties.

This puts a big question mark on how your steel will perform. Moreover, you may not know you have a problem until it's too late.

The big difference with Ryerson is—you know what to count on before you start. Every bar of Ryerson alloy steel is protected by an 8-Point Quality Control Program—including identification by spe-

cific heat as well as by type; spark testing to avoid mixed steels; and complete hardenability tests in accordance with A.S.T.M. specs. This enables us to send you a report on every shipment of alloy steel... a report telling you what your steel will do, and how to heat-treat to obtain desired properties.

These are the plus benefits you get at no extra cost when you order alloy steel from Ryerson. Call your nearby Ryerson plant today... or ask your Ryerson representative to explain our certified plan.



RYERSON STEEL

Member of the **INLAND** Steel Family

Principal products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Earnings Outlook for Second Half:

A so-so third quarter because of:

Sluggish demand.
Mounting labor costs.
High material costs.
Price competition.
Some inventory liquidation.
Record R&D spending.
Vacations.

A fourth quarter rebound due to:

An uptrend in demand.
Better inventory balance.
Pickup in auto production.
Firmer prices.
Improved consumer spending.
Higher government expenditures.
Effect of cost reduction programs.

Profit Uptrend Ahead

It won't gather much steam in the third quarter, but it will be sloping steadily upward in the fourth. Many industries note slight pickups in demand as profit decline eases

A SLOW and somewhat shaky uptrend in metalworking profits is beginning. While the third quarter will probably pretty much parallel the second, the fourth quarter should show significant, though sluggish, improvement.

The second quarter's listings closely approximated those posted in the first period for a majority of companies. Some suffered further setbacks. But a goodly number showed higher net profits, indicating the worst of the recession is past.

Four out of five steelmakers reported improvement in the second period over the first three months. Some registered sizable boosts: Inland Steel Co. and Republic Steel Corp. both posted gains of more than 50 per cent. Detroit Steel Corp. showed a slight second quarter profit after a \$303,678 first period loss. Jones & Laughlin Steel

Corp.'s earnings rose 143 per cent.

With orders holding up better than expected, some steelmakers look for third quarter improvement—despite higher labor costs and plant shutdowns for vacations.

Far Below '57—Even with the expected improvement, metalworking can't hope to approach the 1957 profit level this year. Many companies will have difficulty clearing half what they earned last year.

Only a handful of firms, such as International Business Machines Corp., will set earning records. For some metalworkers, the second half goal is the minimization of losses.

Potential Barriers—The effect of improved demand on profits will be more than a directly proportional gain. That's because increased buying will tend to firm prices. (Much of the poor first half showing can be attributed to price weakness.)

So second half gains in profits are in prospect.

But two factors—a steel price increase and an auto strike—could bring about a further slide.

Steelmakers say they'll have to boost prices to show respectable last half earnings; steel buyers fear the added costs would further erode their margins since much of the boost would be absorbed.

An extended auto strike could reverse the fourth quarter outlook. A prime upward factor: Anticipated high production in Detroit after new model introductions.

Steelmakers are pinning their third quarter hopes largely on the auto market. Carmakers have begun volume buying for '59 models, and prospects of a steady rise in demand from that source figure largely in mill projections of higher operating rates during August and September. July may have been the steel industry's third best month of the year, because of demand from Detroit.

Aircraft Outlook Mixed—Several aircraft producers expect to exceed their '57 profit showings this year. Chance Vought Aircraft Inc.'s mid-year backlog was \$542 million, vs. \$467 million a year ago. Bell Aircraft Corp.'s president, Leston Faneuf, predicts this year's profit

Metalworking's First Half Earnings Hit Bottom

(Net profit)

SELECTED COMPANIES	1958	1957
Air Reduction Co. Inc.	\$6,556,383	\$8,219,051
Allis-Chalmers Mfg. Co.	8,611,204	11,292,018
Aluminum Co. of America	19,471,908	38,038,979
American Brake Shoe Co.	2,525,249	5,426,912
American Zinc, Lead & Smelting Co. ..	471,328	900,043
ASR Products Inc.	574,171	753,029
Avco Mfg. Corp.	6,210,485	5,232,621
Bell Aircraft Corp.	2,175,703	2,121,645
Bell & Howell Co.	634,774	454,733
Bliss & Laughlin Inc.	470,497	1,221,174
Bohn Aluminum & Brass Corp.	296,246	687,741
Budd Co.	700,376	5,329,489
Caterpillar Tractor Co.	14,459,957	27,389,486
Central Foundry Co.	390,308	411,735
Chance Vought Aircraft Inc.	4,748,226	2,125,989
Chrysler Corp.	(a)25,200,000	89,700,000
Clark Equipment Co.	2,655,488	4,321,752
Cleveland-Cliffs Iron Co.	3,012,163	5,415,562
Combustion Engineering Inc.	3,618,708	3,503,792
Continental Can Co. Inc.	16,958,000	19,575,000
Controls Co. of America	317,954	578,711
Cooper-Bessemer Corp.	1,531,562	2,800,691
Copper Range Co.	1,469,619	2,085,063
Eaton Mfg. Co.	3,043,801	6,586,156
Ekco Products Co.	1,357,712	1,755,254
Fansteel Metallurgical Corp.	644,977	1,742,279
Ferro Corp.	783,462	877,659
Firth Sterling Inc.	(a) 553,100	812,400
Foot-Burt Co.	(a) 124,998	438,965
Ford Motor Co.	5,400,000	171,000,000
General Cable Co.	3,151,352	6,521,270
General Electric Co.	103,381,000	127,823,000
General Motors Corp.	333,514,249	481,236,708
Gillette Co.	12,274,611	13,008,359
Hussman Refrigerator Co.	803,540	1,151,780
IBM Corp.	50,597,655	40,061,507
Interlake Iron Corp.	1,245,190	3,634,648
Johns-Manville Corp.	8,011,000	8,614,000
Kennecott Copper Corp.	22,959,071	49,331,408
Lamson & Sessions Co.	307,793	1,281,520
Mack Trucks Inc.	3,219,739	6,508,316
Manning, Maxwell & Moore Inc.	873,000	1,642,000
Martin Co.	3,590,271	4,425,932
Minneapolis-Honeywell Regulator Co. ...	8,955,587	10,304,470
Monarch Machine Tool Co.	142,717	678,485
National Cash Register Co.	7,244,557	8,183,297
New York Air Brake Co.	113,367	1,326,572
New York Shipbuilding Corp.	976,878	1,304,785
Polaroid Corp.	2,313,000	1,981,000
Radio Corp. of America	13,544,000	20,311,000
Reynolds Metals Co.	19,210,266	18,546,817
Ronson Corp.	66,568	729,542

SELECTED COMPANIES	1958	1957
Simonds Saw & Steel Co.	931,191	2,147,383
South Bend Lathe Works	149,705	594,035
St. Joseph Lead Co.	2,214,361	5,759,433
Sundstrand Machine Tool Co.	1,546,252	2,115,712
Sylvania Electric Products Inc.	2,582,870	4,788,669
Thompson Products Inc.	3,733,056	8,323,211
Timken Roller Bearing Co.	6,159,433	12,890,547
Towmotor Corp.	707,830	1,017,734
Transue & Williams Steel Forging Corp.	5,325	353,357
Union Carbide Corp.	49,901,375	69,601,905
United-Carr Fastener Corp.	825,068	1,760,807
U. S. Pipe & Foundry Co.	2,887,334	4,782,504
Vertol Aircraft Corp.	185,021	1,322,079
Wagner Electric Corp.	2,301,037	3,303,775
White Motor Co.	2,543,208	3,350,746
Worthington Corp.	4,163,006	4,868,268
Youngstown Steel Door Co.	437,009	1,603,133

(a) Net loss.

Steelmakers in Cellar, Too

(Net profit)

SELECTED COMPANIES	1958	1957
Acme Steel Co.	1,577,196	3,941,773
Alan Wood Steel Co.	339,000	1,436,000
Allegheny Ludlum Steel Corp.	1,371,967	7,742,092
Armco Steel Corp.	20,956,744	38,583,106
Barium Steel Corp.	(a) 1,060,431	*
Colorado Fuel & Iron Corp.	(a) 326,708	8,904,714
Continental Steel Corp.	1,669,754	1,686,310
Copperweld Steel Co.	(a) 207,138	1,989,981
Crucible Steel Co. of America	399,327	6,045,996
Detroit Steel Corp.	(a) 301,839	1,863,964
Eastern Stainless Steel Corp.	933,227	1,602,090
Granite City Steel Co.	3,896,583	6,249,956
Inland Steel Co.	20,079,731	29,764,456
Jessop Steel Co.	274,206	875,908
Jones & Laughlin Steel Corp.	5,691,000	26,593,000
Kaiser Steel Corp.	3,970,137	14,908,487
Lone Star Steel Co.	482,829	6,664,060
Lukens Steel Co.†	3,057,409	5,979,164
National Steel Corp.	10,329,188	26,108,847
Pittsburgh Steel Co.	(a) 1,532,659	3,621,323
Republic Steel Corp.	23,904,602	52,917,897
Sharon Steel Corp.	(a) 1,018,934	2,730,025
U. S. Steel Corp.	135,650,730	231,421,308
Washington Steel Corp.†	246,668	1,464,847
Youngstown Sheet & Tube Co.	7,812,741	21,924,309

1. Nine months. †24 weeks. (a) Net loss. *1957 not comparable due to spin-off of Republic Industrial Corp.

"will be just about the same" as 1957's despite a sales decline. Companies heavy in missiles are doing well. Example: Lockheed Aircraft Corp.'s first half earnings were 29 per cent above the year-earlier figure. More than one-fourth of its sales are in missiles and satellites.

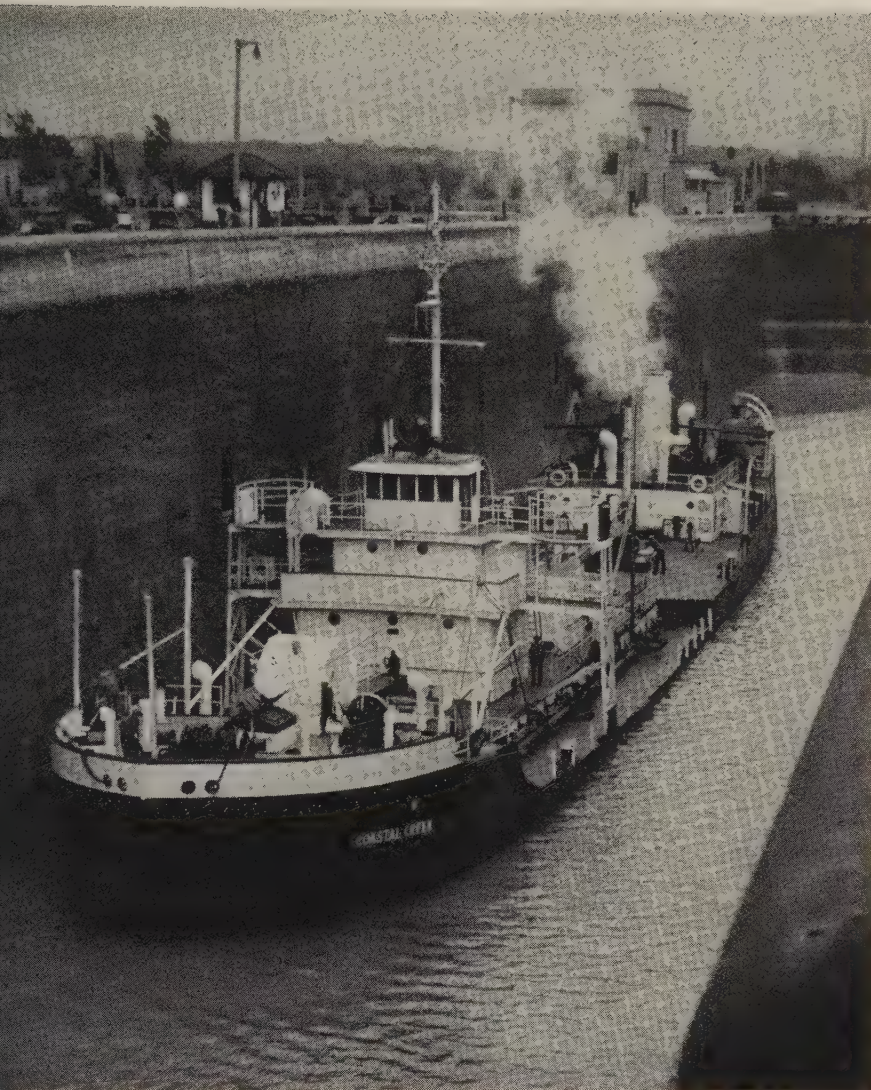
Some other aircraftmakers expect notably poorer profits. Their reasons: 1. Commercial sales are declining. 2. Research and development costs are extremely high. 3. Missile programs haven't hit the

"full production" stage.

Autos Look to Fourth—Barring a strike, carmakers and their suppliers look for a considerably improved last quarter after three poor-to-profitless periods. Chrysler Corp. showed a \$25.2 million net loss in the first half. Ford Motor Co. showed a meager profit for the half after a \$17.3 million second quarter loss. General Motors Corp. reports an earnings decline of about 30 per cent but it's far from running in the red. High note: American Mo-

tors Corp. shows a \$14.6 million profit for its first three fiscal quarters, vs. a \$6.5 million loss in the comparable '57 period.

Aluminum: Price Boost?—Producers of aluminum have noted increasing commercial sales in the last two months; they expect the trend to continue. Add to that the possibility of a 2 cent per pound price increase any day now and the outlook for earnings improves—despite a 24-cent-an-hour wage hike that went into effect Aug. 1.



Lake Carriers Association.

Seaway Tolls Contested

Lake Carriers Association opposes charges on Great Lakes vessels using Canada's Welland Canal. It's questionable too whether railroads will offer special lake port rates

A NEW skirmish in the battle will begin Wednesday (Aug. 6) in Washington, when the St. Lawrence Seaway Development Corp. starts public hearings on proposed seaway toll levels. Previous hearings have been held on assessment methods.

The St. Lawrence Seaway Authority (Canada) will hold hearings the same day in Ottawa. The U. S. and Canadian groups have agreed on suggested charges for seaway users.

The Opposition—Vice Adm. Lyndon Spencer, president of the Lake Carriers Association, Cleveland, says that tolls on Great Lakes vessels using the Welland Canal would constitute a "violation of U. S. policy and U. S. and Canadian international policy." His group has no objection to tolls on seaway traffic using the canal.

Admiral Spencer points to the fact that about 75 per cent of the traffic through the Welland Canal

is not seaway traffic. He says that tolls on commerce originating and ending on the lakes would add to the costs of goods produced or consumed in areas bordering Lake Ontario (New York State and the Province of Ontario). Consequently, a competitive disadvantage would be suffered by shippers and users of grain from the Upper Midwest, iron ore from Minnesota, Michigan, and Wisconsin, and coal from Pennsylvania and Ohio. The admiral says that tolls as proposed would increase cargo costs 4.5 cents a ton.

Should Be Absorbed—He points out that Canada is spending only \$27.5 million on Welland Canal improvements (which is 19 per cent of the amount the U. S. is spending on its connections, such as the Detroit, St. Clair, and St. Marys Rivers, which are used free by Canadian ships).

Admiral Spencer insists that neither the U. S. nor Canadian governments intended lake vessels to pay such tolls; that charging such ships would not be "reasonably related to defraying the cost of a deep waterway from Montreal to Lake Erie"; and that the U. S. has proprietary interests in the canal and should have been consulted on the question of tolls.

He wants Canada to absorb the costs (as far as Great Lakes shipping is concerned). He has appealed to the U. S. State Department to take up the matter with Canadian authorities.

A Bottleneck?—Even without the fight over toll policy, the Welland is a problem. Some experts fear that the canal will not be able to handle the increased seaway traffic.

Their reasoning: In 1956, Welland and its eight locks handled about 23 million tons (its capacity is theoretically about 50 million tons). But delays already are developing. Some shipmasters are complaining that it takes a full day to make the passage from Lake Ontario to Lake Erie.

And the Railroads—Most transportation authorities agree that for the seaway to be successful it will be necessary for railroads to offer special rail rates to Great Lakes ports (as they do along the Atlantic Coast).

Since the rails were among the leaders in the fight against the waterway, many shippers are cauti-

ously waiting to see what they'll do before deciding on their own course of action.

Chances seem good that the railroads will finally decide to co-operate.

How Much?—Canadian and U. S. toll committees have agreed on the following rates:

For each passage through the entire seaway (Montreal to Lake Erie), vessels will be assessed 6 cents per gross registered ton of ship weight, 42 cents per ton of bulk cargo, and 95 cents per ton of general cargo.

For each passage from Montreal to or from Lake Ontario, ships will be charged 4 cents per gross registered ton of ship weight, 40 cents per ton of bulk cargo, and 90 cents per ton of general cargo. For partial transit of the new seaway facilities, users will be charged 15 per cent of the applicable toll for each lock.

Here is the item to which the Lake Carriers Association objects: For passage through the Welland Canal only, vessels will pay 2 cents per ton of ship weight and 5 cents per ton of general cargo. In the canal, a partial transit charge of 50 per cent of the toll will be assessed regardless of the number of locks used. Canada's Parliament authorized assessment of tolls to de-

fray canal improvement expenses when it passed the St. Lawrence Seaway Authority Act in 1951.

Commercial passenger ships using the seaway will be charged 50 cents per passenger for each lock transited between Montreal and Lake Erie in addition to the vessel charge.

Collections—Toll payment methods are based on the necessity to keep ships moving in the seaway. Provision is to be made for prior registration of vessels and for satisfactory security to insure payment of charges. Tolls will be billed either to owners or agents and will be payable within seven days.

For through passage, invoices will show two payments due: One in Canadian funds to cover the amount due the St. Lawrence Seaway Authority (determined at 71 per cent of total charges), and the rest in U. S. funds payable to the St. Lawrence Seaway Development Corp. Tolls collected for use of the Welland will be payable to the Canadian group.

The division of revenues is based on current figures of estimated capital and operating costs and are subject to change as actual costs may indicate necessary.

How Long — According to estimates by both U. S. and Canadian toll committees, the suggested

charges should be sufficient to cover the seaway's financial requirements (provided anticipated traffic develops). They believe that tolls will bring in enough money to cover annual operating and maintenance costs as well as interest charges and amortization of borrowed money over the next 50 years.

The committees estimate that traffic during the first year of seaway operation will be about 25 million cargo tons and will rise to 50 million by 1968. For Welland, the Canadian committee estimates cargo will hit 40 million tons in 1959, climbing to 60 million by 1968.

Traffic estimates by both groups include consideration of a development period extending to 1968 during which "there may not be enough revenue to meet all annual financial requirements."

And if that sounds like a polite way of saying they won't be able to pay their bills, they maintain that increased traffic by 1968 will provide sufficient revenues to pay off deficits incurred during the first 10 years and meet requirements during the next 40-year period.

In Spite of It—Admiral Spencer's group expects to win its fight. Probably other objections will also be raised. But problems notwithstanding, the seaway should be successful because enough people want it to be.

Examples: In Chicago, a \$37.5-million harbor improvement program is underway. Long range plans call for expenditures of about \$125 million.

Milwaukee is working on an \$11-million program.

All along the seaway, harbors and facilities are being dredged, built, and improved.

Exports Rolling Mill

United Engineering & Foundry Co., Pittsburgh, recently completed the manufacture of a mill for the rolling of wide flanged beams directly from ingots. Estimated capacity: Over 700,000 tons a year. The mill has been placed in operation at the Lackenby Works of Dorman Long Co. Ltd., Middlesbrough, England. It makes available to English markets beams much larger than heretofore available, say United Engineering officials.



MAGNETS MAKE PIPE HANDLING EASY for this 11-ton fork lift truck. They pick up pipes from 2 to 30 in. in diameter and up to 60 ft long. When turned parallel to each other, they can lift several pipes at a time. Magnets for this unit, used by Southern California Gas Co., Los Angeles, were built by the F. W. Shrader Co., Los Angeles

Modernizing Your Plant? First . . .

1. **Determine Production Quotas**—by deciding which products will be retained, dropped, modified.
2. **Analyze Products and Their Components**—which parts should be bought and which made.
3. **Check Production Facilities**—what new equipment and processes are needed; what should be scrapped.
4. **Prepare Optimum Layout**—what is the best layout for you in view of data found above.

Plan Before You Build

DON'T START mixing that mortar for your addition unless your modernization program has been well planned. A carefully thought out approach will help you avoid such penalties as duplication of facilities, overlooked opportunities for savings, excessive construction, and lack of co-ordination between the old and new, says Walter Kidde Constructors Inc.

Good planning, says Kidde, entails four major steps.

1. Production Quotas—Determine what products you should drop, add, or modify from reports of your marketing departments on past volume, predicted volume, and reasons for lost orders; a profit and cost breakdown on the new or improved products; and a cost analysis from the engineering department on the new equipment and processes necessary for the products.

2. Products and Components—New space and equipment can be closely estimated only if you consult reports from engineering, production, and purchasing on the advisability of making or buying components.

3. Production Facilities—While engineering and production are hunting ways to cut costs by com-

bining, simplifying, or eliminating operations on the new or improved products, have engineering make a flow chart for you—including the manufacturing sequence, necessary equipment, handling, and monthly volume of each part.

With the flow chart and complete cost information, you are able to decide which parts you will make. Have the flow sheet revised to include only the products you have decided upon.

4. Optimum Layout—After consulting another report from engineering listing the amount of storage area necessary for materials, purchased parts, and completed products, make a preliminary layout and pass it around to the departments concerned for comment.

Remember that a good layout has raw material areas close to their point of use and assures that storage equipment permits simple and effective inventory control. Toolrooms, locker and washrooms, maintenance shops, and truck docks should also be in convenient locations.

After revising the preliminary layout in line with the comments, complete it by adding details such as headroom, overhead loads, and the

necessary service requirements.

You now have a clear indication of how much you can expect to realize from your investment.

You are ready to mix the mortar for that cornerstone.

Egypt Industrializes

Nasser wants to make his country self-sufficient. New steel plant near Helwan marks another step

EGYPT'S first integrated iron and steel works was scheduled to be inaugurated on July 23 by President Nasser of the United Arab Republic.

The plant near Helwan has an initial capacity of 265,000 tons of ingot steel (the eventual goal is 500,000 tons). It marks a step in Nasser's plan to make Egypt self-sufficient for her ingot steel needs.

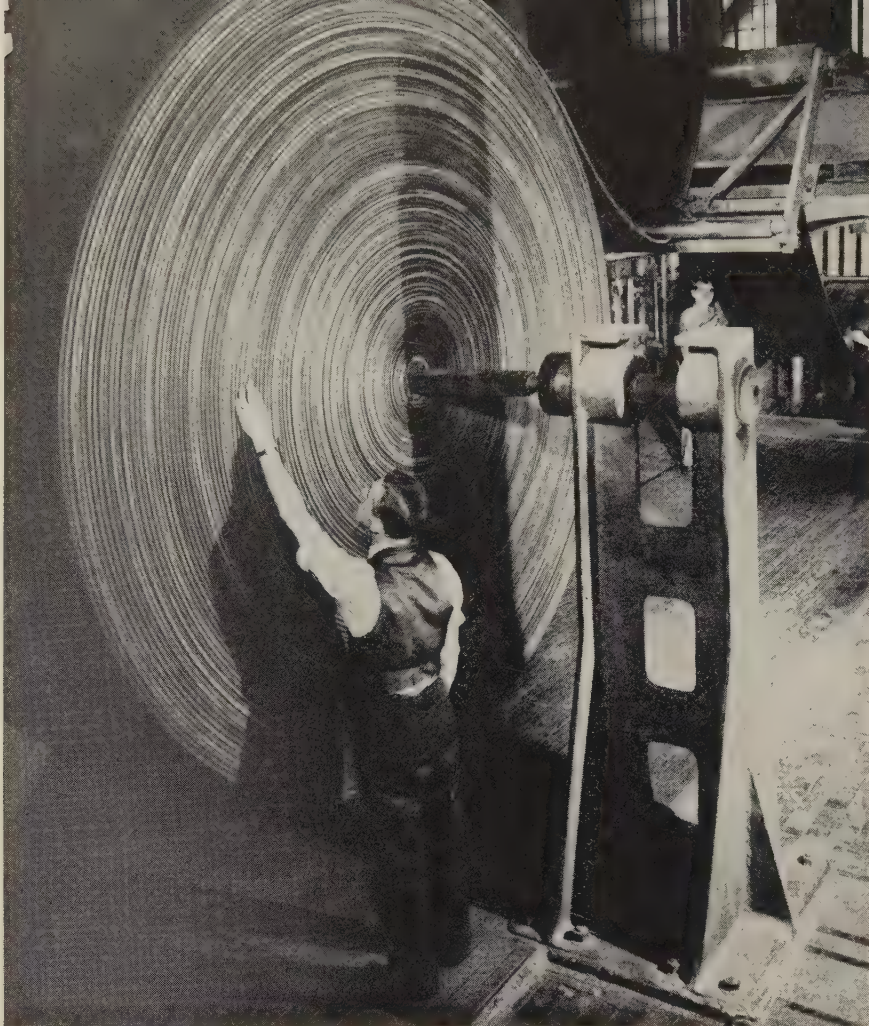
Equipment—Facilities are being furnished by Demag Aktiengesellschaft/Pressestelle, Duisburg, West Germany, under contract with the Egyptian government. The completed part of the works includes two blast furnaces, a steelworks, rolling mills, and auxiliary equipment.

The blast furnace plant includes a blower tank. The steelworks has an inactive mixer, three basic bessemer converters, two electric furnaces, lime and dolomite kilns. The rolling mills are comprised of a 2-high reversing blooming mill with soaking pits set up in front; a 3 stand, 2 high blooming and finishing mill; and a 3-high mill for heavy and medium plates; and a 2-high stand for sheets.

The mills have an annual throughput of 200,000 tons of billets, rails, sections, heavy and medium plates and sheets. Some billets will be sent to other Egyptian rolling mills for further processing.

Power and Supplies—The iron and steel works will have its own power station for generation of electricity. Surplus gas at the works will be used at the generating station.

Ore (about 47 per cent iron) is some 620 miles to the south near Asswan (where the Libyan desert starts). The Demag mining equipment has a yearly capacity of about 300,000 tons. Coke will be imported.



U. S. Rubber Co.

Products like this belting are stronger, weigh less as . . .

Rubbers Go Synthetic

MAKERS of industrial rubber goods are speeding up their use of synthetics. "It's the most significant development in our industry today . . . and has opened new horizons for industrial rubber," says R. B. Hazard, vice president of sales, Rubber & Packing Div., Raybestos-Manhattan Inc., Passaic, N. J.

Benefits—To metalworking, this means products offering better strength-to-weight ratios, more resistance to heat and corrosion, greater ease of handling, and more value per dollar spent.

One synthetic with large potential is urethane rubber. It is extremely hard and abrasion resistant

but retains a high level of elasticity, resilience, and shock absorption. In one test, a urethane lining was added to a cast iron pump housing that had to be replaced every 350 hours. Result: The housing was still in satisfactory condition after 3000 hours.

Teflon (a corrosion resistant plastic), in combination with rubber, offers good potential for developing long lived products that will survive highly corrosive conditions.

Henry E. Pruner, marketing manager for U. S. Rubber Co.'s mechanical goods division, cites plastic pipe as a product with a future because of its corrosion resistance and light-

ness. He also points to burgeoning use of high strength synthetic fibers (combined with rubber) in conveyor belting. The belts are less bulky than others and have good strength-to-weight characteristics, says Mr. Pruner.

Allis Rubber Div., Allis Mfg. Co., Chicago, says silicones are finding a broad range of applications because of their high and low temperature characteristics and because they are semiresistant to oil. Allis estimates 90 per cent of its work is in synthetic rubber products.

More Uses—The rubber industry thinks synthetics will give it greater penetration of its markets: Automotive, oil production and refining, mining, iron and steel production, appliances, construction, railroads.

In the automotive field, rubbermakers point to the air spring, designed as a substitute for metal coil and leaf springs. Use has been small so far, but the industry believes the potential is great. (One company believes 10 to 20 per cent of 1959 models could use air springs.) The trend toward power steering and power brakes (which takes hydraulic hose) is another growth area.

A new hose that employs steel wire (in its carcass) is expected to find wide use in mining, construction, and petroleum operations.

One of the most dramatic examples of how synthetics can improve a product is the world's largest slope conveyor belt, built by U. S. Rubber for the Cleveland-Cliffs Iron Co.'s taconite iron ore mine at Ishpeming, Mich. This unit marks the introduction of rayon combined with nylon for high tension conveyor belt carcass construction, says U. S. Rubber. The conveyor is designed to haul 670 tons of low grade taconite iron ore an hour over a distance of 793 ft.

More Markets — New uses and new products are springing up everywhere. Quaker Rubber Div. of H. K. Porter Company Inc. sees aircraft ground support equipment as a coming market. The company recently developed an aircraft ground refueling hose for the Air Force designed to prevent swelling and loss of adhesion. It's said to produce maximum flexibility at -65°F to $+130^{\circ}\text{F}$.

Missiles are another growth area. Some rubber applications: Water, oil, and fuel cells; expulsion and deceleration bags; flexible interconnectors.

Automation is upping the use of hose for power transmission, says C. O. DeLong, president, B. F. Goodrich Industrial Products Co. "Automated lines need hose to transmit steam, air, and hydraulic fluid."

Fewer Sales Now—Even with all its growth possibilities, the industry has felt the recession. Automotive business is running 30 to 35 per cent under what it was in 1957. Sales of the other industrial lines are off about 20 per cent. Major reason: Large markets (such as mining, oil, iron, and steel) have been among the hardest hit by the downturn. An example: "Mines and steel mills use a lot of conveyor belting, but our shipments to them are down substantially this year, reflecting their reduced operating rate," says R. B. Warren, general manager of the Industrial Products Div., Goodyear Tire & Rubber Co.

Makers believe that business has turned the corner and that their industry is on the rebound. The farm implement market is picking up, and construction shows spotty gains.

But the consensus is that 1958 will still end up well under year-ago levels.

Earnings Harder Hit—Profits of some firms are running as much as 50 per cent under last year's. Drop in sales isn't the only reason, say makers. The industry's 1493 companies have too much capacity (some are operating at only 60 to 70 per cent). The situation has made manufacturers more susceptible to pressures from price-conscious buyers. "You have to have a sharp pencil to do business today," says one sales manager.

"The profit picture now has a ghoulish glow rather than a healthy, florid complexion," says Glenn Melinger, sales manager for Ohio Rubber Co.

What To Expect—In spite of current business problems, rubber executives are optimistic. Says one: "Progress in research is rapid. Look for better and more durable products combining greater strength-to-weight ratios, less over-all weight, easier workability, and better chemical and mechanical qualities."

Reform Depreciation—MAPI

Machinery & Allied Products Institute wants Congress to O.K. the triple declining balance method of writeoff (or something similar) to allow industry to catch up with inflation

ADD ONE MORE to the list of proposals for the permanent reform of our depreciation laws.

Machinery & Allied Products Institute suggests a triple declining balance writeoff, or, alternatively, an initial allowance of the British type sufficient to accomplish a similar result.

Reform Needed—STEEL on Apr. 28 came out for permanent depreciation reform, pointing out that our present policy is the most archaic among industrial nations of the world.

Many observers believe America's depreciation ills stem primarily from two sources—the Internal Revenue Service's rigid concept of useful lives for facilities and inflation. MAPI adds a third source—write-off methods.

Partial Reform — The institute proposes to solve the inflation difficulty with a faster writeoff device. The Internal Revenue Code of 1954 authorized two new, faster methods of tax depreciation for assets acquired new after 1953—sum of digits and double-rate declining balance. "Those represented a great advance over the straight-line method employed before," says George Terborgh, MAPI's research director, "but they embody only half the program for reform."

MAPI shows what a speedup in writeoffs would do to total U. S. business tax depreciation (in comparison with use of the double declining method) assuming:

1. That it is applicable only to assets acquired new after 1957.
2. That it is applied to present service life estimates.
3. That new installations after 1957 will regain their 1956-57 level by 1960 and will rise 5 per cent annually thereafter.

Results—The increase in depreciation by the triple method starts in 1958 at a little under \$1 billion. Then it rises rapidly for several years, nearing \$6 billion (the estimated present deficiency from infla-

tion) around 1963. Beyond that, the rise is relatively gradual.

If you use the British approach (depreciate by double-rate declining balance and allow in addition a first-year writeoff of 25 per cent for equipment and 12.5 per cent for buildings and structures), the increase in depreciation starts high—around \$7 billion for 1958—and declines gradually.

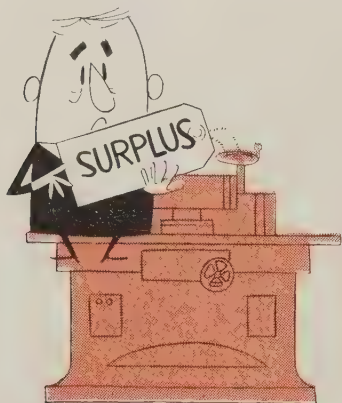
The former method is best if you want to start with a modest impact and build up over the years. The latter is preferable if you want a large immediate impact.

The Bracket Approach — MAPI discusses the bracket approach (recommended by STEEL, Apr. 28, p. 55), but strongly implies its preference for triple declining balance.

The institute acknowledges the simplicity of the bracket method: All assets could be classified into relatively few groups (17 in Canada, with a maximum declining-balance rate assigned to each). But it contends: "The principal disadvantage of this approach is the application of uniform rates to assets of widely differing service-life characteristics. Unless the number of categories is multiplied unduly, each must cover (too) wide a spectrum."

Rebuttal — Proponents, including STEEL, reply that such an objection has not unduly troubled the Canadians who have used the procedure since 1949.

Although students of reform may disagree on methods, all agree that reform is needed. All would echo this comment from MAPI's president, Charles W. Stewart: "Federal tax reform is not a dead issue merely because, for fiscal reasons, it was decided not to legislate reform this year. A major overhaul of the tax structure is absolutely prerequisite to the continued health and growth of this country. Basic thinking and formulation of recommendations must proceed expeditiously if we are to be ready to persuade Congress to act next year."



Surplus Tool Program Is Snafued

WASHINGTON's efforts to save the machine tool industry from a rising tide of used tools seem doomed. The Pentagon, particularly the Air Force, is determined to rid itself of as many excess tools as it can. Only tool-oriented personnel of the Office of Defense & Civilian Mobilization and the Business & Defense Services Administration remain to remind the Defense Department of its debt to, and need for, the industry. Congressional sentiment is running against the federal agencies and in favor of the Pentagon's point of view.

Officially, ODCM and BDSA personnel warn of perhaps 12,000 to 13,000 tools being declared excess in fiscal 1959 by Uncle Sam's various agencies, but, off the record, they are concerned that such estimates may be far too low. STEEL has told of plans to sell as many as 25,000 tools a year (July 29, 1957, p. 78).

Two Plans Aren't Working Out

To beat the Pentagon to the punch, two plans were developed this year:

1. The school tool program by BDSA and the Health, Education & Welfare Department.
2. An expansion of the National Industrial Equipment Reserve (NIER) by ODCM and General Services Administration. Neither plan is working out as expected. They may be working against each other.

Surveying U. S. schools, BDSA has found that they would like to have 50,000 to 100,000 tools for research and technical training. (Some tools they are using are over 50 years old; the average age of Uncle Sam's tools is about seven years.) But what the schools would like to have and what they could absorb in the next year are two different things. In 1953, only 10,000 machine tools were being used by the schools. ODCM questions their ability to absorb enough now to help the machine tool industry.

The ODCM-GSA program to transfer 5000 excess tools to the NIER in fiscal 1959 instead of 500 has been scuttled. The House Appropriations Subcommittee, under the leadership of Rep. Albert Thomas (D., Tex.), has voted to cut this fiscal year's request for funds from

\$3.5 million to \$1.5 million. The slice may mean that only 2000 tools can be transferred leaving about 3000 potential NIER tools to be marked "surplus" and sold (plus at least 9500 others, or twice that if you listen to some Washington pessimists).

Of 8000 tools sold in the last fiscal year, one-third were scrapped. This year, more good, general purpose tools are marked excess, and the scrap percentage will be lower.

U.S. Agencies Can't Agree

The saddest thing about the situation may be a disagreement among government agencies as to how tools should be handled. It's reported that the NIER funds were slashed as a direct result of BDSA's claims in favor of the school program. Congress is not sold on the value of NIER, and with the huge deficit expected for fiscal 1959, the legislators are prone to cut funds from any unpopular appropriation they can, especially in the mobilization area.

As usual, the problem is to be met with a special task force: The old machine tool group which worked on rental rates, plus a Health Department representative. Because of relatively small employment per firm in the machine tool industry, some Washington sources report an attempt to beat the small business drums in Congress to stop the tool sales. That method of attack is somewhat suspect, however, because small firms would seem to be more logical buyers of used tools.

Consent Judgments Criticized

Because Justice Department decisions to accept consent judgments in antitrust cases often practically rule out redress by private parties (because of high court costs involved in overriding a Justice decision), the Senate Small Business Committee is demanding:

1. A reconsideration of over-all department policy.
2. A study by an outside group (perhaps the American Bar Association) designed to cut litigation costs.

The committee notes that 83 per cent of the Antitrust Division's civil cases were terminated by consent agreements in 1957, vs. 72 per cent between 1935 and 1955.

Conversely, the Federal Trade Commission reports "sharp increases" in complaints and orders to halt monopolistic and deceptive business practices during fiscal 1958. Eighty-six antimonopoly complaints were filed by FTC last fiscal year, compared with 55 in fiscal 1957.

GE's Case Brings Utility Survey

The Federal Power Commission is inventorying heavy electric power equipment purchased abroad and used by utility companies. General Electric Co. and the National Electrical Equipment Manufacturers Association petitioned ODCM, claiming imports of heavy equipment were a threat to national security and demanded relief under the Trade Agreements Act or the Buy American executive order.



Operations research to the rescue as . . .

Cummins Controls Inventory

DESPITE high inventories, Cummins Engine Co., Columbus, Ind., suffered shortages of parts at the assembly line. It remedied the situation through operations research.

Shortages of this sort lead to costly expediting, special setups, interrupted production runs, shipping delays, and pileups at inspection and testing stations. High inventories tie up working capital and lead to unnecessary obsolescence.

Gear Your Thinking—Cummins' management wanted more than just an immediate solution to its problem. Goal: A system that would give optimum control over inventories and production scheduling for the long pull.

Seeking a fresh approach, Cummins called in Case Institute of Technology's Operations Research Group. Its job: Solve the problem and train selected company personnel in OR at the same time through their participation in the study).

Analyze the Situation—The OR team (two Case men and two Cummins men) first familiarized themselves with the company's operations and objectives. It then investigated all areas that could affect availability of parts.

Find the Cause—Needed were:

1. A revised order processing system.
2. Redesigned material control and production scheduling activities.
3. A simple way for clerical personnel to compute inventory needs and schedule production.

Simplify Order Processing—Under the old system, it took 16 working days to process an order. Since most customers specified delivery in 45 calendar days, half the leadtime was consumed by paperwork. That caused a lot of "hot" orders, leading to errors and excessive costs.

There were far more changes to orders than original orders due to inadequate field information, poorly organized files of optional components, and lack of a system for controlling engineering changes. (Often, new parts were designed unnecessarily.)

Such duplication was eliminated and processing time was slashed from 16 days to five. Here's how: 1. Order interpreting and specification writing functions were combined. 2. A file of optional components was set up so application engineers only have to examine orders needing special parts rather than all orders. 3. Comprehensive application and price manuals plus new sales order forms were given to dealers. 4. A data processing

center, using an IBM 650, was established where orders are "exploded" so that part requirements are known immediately. (It previously took up to 40 days to gain knowledge of all special parts.)

Revise Production Scheduling—The new production scheduling system works this way: Upon receipt, each order is assigned a tentative assembly month. Each week, an assembly schedule is set for the fourth week hence. From that, part production schedules are derived. A firm assembly schedule is set each day for the eighth working day hence. From that, sub-assembly schedules are set and the inventory chargeoff for parts is determined. That way, inventory figures on all parts are kept current.

Control Inventories—Cummins carried large cushions of components due to extreme variability of demand and the delivery latitude allowed suppliers. Needed: A system to closely control delivery schedules and immediately reflect demand changes.

The OR team developed formulas to determine when each part should be reordered. They're based on estimated demand during the lead-time period, the unit cost of carrying inventory, and the unit cost of shortage. Parts fall into four classes according to their demand pattern. Using a nomograph, the reorder level for a part can be quickly found by knowing average monthly demand, range of demand (maximum-minimum), the leadtime, and the part class.

Example: A Class 2 part with average demand of 600, a range of 250, and leadtime of two months must be reordered when inventory drops to 1560. That's because 1200 will be needed during the leadtime period and the nomograph shows the cushion should be 360 parts. Now, ordering parts at exactly the right time can be handled easily by a clerk. An IBM 650 makes routine decisions.

Reports are issued listing only the parts that have to be reordered. Master schedules are issued for major parts; summary reports show raw inventory, in-process inventory, and finished stock.

Of 25,000 active parts, 5000 are not controlled in the data processing center. They're small, inexpensive items, such as fasteners

which are controlled by a visual bin system. Cards in each storage bin list the appropriate reorder level and quantity. When inventory reaches the specified level, the card is pulled and used as a purchase order.

Control the Results—Since an automatic production control system perpetuates errors, stringent controls have to be incorporated into the system. Limits are established to provide immediate feedback when there are any unexpected changes in customer demand. Because a great variation in demand can out-mode the system, it's re-evaluated periodically.

The new method takes into account the advantages of buying at quantity discounts. A decision rule can be easily applied to show what size purchase is most economical.

Says Richard B. Stoner, Cummins' vice president-manufacturing: "The changes enabled us to obtain cost benefits immediately and to continue them each month. We anticipate even greater success." The company has set up its own OR staff.

\$3 Billion for Ships

Shipbuilders have launched what they say is America's largest peacetime replacement program. Twelve cargo and passenger carriers are rebuilding their vessels at a cost of \$3 billion. Manufacturers and suppliers in every state will benefit, reports the Committee of American Steamship Lines, Washington.

Industry is expected to feel the impact of the program 10 to 15 years. CASL believes about half the investment will be paid to labor. Most of the remainder will go to producers of steel, nonferrous metals, and other supplies.

Four ships are nearing completion. They represent an investment of over \$100 million. Keels for another 18 will be laid before yearend. At least 282 ships will be built. Negotiations between the government and the shipping industry could add 25 more.

Ship operators believe this project will enable them to compete aggressively in world trade while maintaining ships to serve as troop and cargo carriers in a national emergency.

Labor Arbitration Cases Up



American Arbitration Association.

• THE AMERICAN Arbitration Association will administer 3000 labor cases this year, vs. 2598 in 1957 and 2175 in 1956.

Although AAA is involved in only a fraction of the total cases, its figures indicate the trend: Arbitrations are increasing at the rate of 15 per cent annually.

Management Take Note—That's of concern to metalworking's managers because industry's won-lost record could be markedly improved. It's tough to figure a precise box score because of the frequent divided rulings, but here's how AAA sees trends in a recent sampling:

Discharge Cases

For management	46.4%
For labor	18.7
Divided	34.9

Discipline Cases, Except Discharge

For management	56.3
For labor	33.3
Divided	10.4

Seniority Cases

For management	54.8
For labor	42.2
Divided	3.0

Job Evaluation Cases

For management	57.0
For labor	31.4
Divided	11.6

Incentive Plan Cases

For management	51.4
For labor	34.6
Divided	14.0

Kinds of Cases—The most common (about 25 per cent) involve discharge and discipline. In 1957, job evaluation accounted for 23 per cent, seniority 13 per cent. This year, the many layoffs have boosted the seniority load and that problem will account for about 20 per cent of the volume.

The recession is the reason for much of the increase in the case load this year. "Obscure contract language on discharge, layoff, and recall matters have led to all kinds of grievances," says Hubbard Capes, legal counsel for Associated Industries of Cleveland. "Also more common are management-rights cases, such as the extent of subcontracting. Industry is getting tougher about these matters, but too frequently discovers that its

5% in '58; How Management Can Win More



1. **Make your contract simple and clear.** Most grievances arise because parties dispute the meaning of contract language.
2. **Train foremen to know your policies, your contract, and grievance-arbitration procedures.** They're key men because most grievances start with them.
3. **Keep records of every grievance, its disposition, and the ruling of the arbitrator if it goes to arbitration.**
4. **Pick an experienced man to handle your case—preferably your own labor relations director, but if you haven't got one, employ an outside specialist. Know your facts; round up your witnesses.**
5. **Beware of token cases where you know your position is weak but you believe you must support a supervisor who erred.**
6. **Pick your arbitrator with care. Is he experienced? Impartial? Does he split many decisions and otherwise play politics to get business?**

labor pact's wording is ambiguous, a heritage of more careless boom-time days."

Arbitration has shown long term gains as a method of peacefully settling grievances because it has become accepted as a practice by many courts, because it is more commonly included as a problem solving method in contracts, and because of the greater number of multiyear contracts. When a pay pact runs two or three years, labor leaders have fewer chances to demonstrate their merits to constituents. Arbitration is a handy forum.

The Foreman's Role—The supervisor is management's key to winning more cases (see checklist). Most grievances start with him. His diplomacy can often settle a problem before it ever need go to arbitration, the last step in the grievance procedure.

Nearly all the discipline cases directly involve him. If he uses sound judgment, management must make the tough decision to back him regardless and take a chance on a weak case, or admit

he's wrong and risk weakening his authority.

The arbitration procedure is quasi-legal, so your position must be prepared as for a lawsuit. "Too often, one side or the other loses a case because of careless preparation," say Joseph G. Stashower, Cleveland arbitrator. (For tips on preparing your case, see STEEL, July 22, 1957, p. 60.)

Not Enough Arbitrators—"There aren't enough accepted arbitrators," complains Calvin W. Cutler, AAA's regional manager in Cleveland. His organization maintains lists of arbitrators and submits names when requested and will also, for a fee, administer cases. Thousands of lawyers, educators, clergymen, and specialists offer their services, but relatively few judge many cases. Most top arbitrators belong to the National Academy of Arbitrators, which has only 240 members.

Companies and unions are too reluctant to accept new men as arbitrators, says Mr. Stashower. The result is that the accepted men are overloaded, and cases often can't be decided promptly. Mr. Stashower

also charges: "Arbitration—or the threat of it—is too often used as a club to win a settlement." A grievance is unresolved, the arbitration hearing date set, but the case gets solved just before the hearing.

Arbitration's Cost — An under-the-gun settlement may result because you don't go to arbitration lightly. The umpire's decision is binding, and it may go against you and set expensive precedents. Even the cost of the procedure is not small. The average one-day hearing costs \$300, split by both parties. If AAA administers the matter, that's \$60 more—also split by the parties. The typical arbitrator charges \$100 a day, plus expenses, for hearings, preparation, and rendering of his decision.

Comments Arbitrator Stashower: "It makes for better industrial relations to settle by negotiation than by arbitration. I'm sure more cases could be settled before they reach men like me."

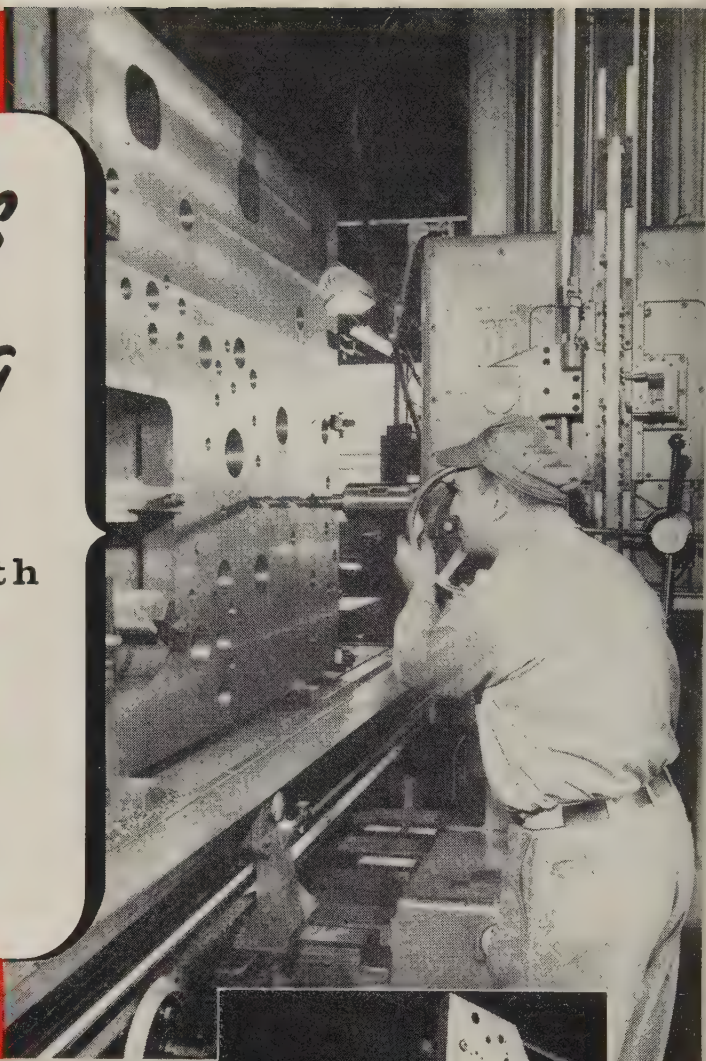
• An extra copy of this article is available until supply is exhausted. Write Editorial Service, STEEL, Penton Bldg., Cleveland 13, Ohio.

Automatic Positioning

Reduces
Production Costs with



H. B. M.
MODEL 75



The experience of George Hantscho Company, Inc., Mount Vernon, New York, builders of equipment for the printing industry, is typical of that enjoyed by users of Bullard H.B.M., Model 75.

THE PROBLEM

To bore 105 holes, from 5" to 1/2" in diameter, in both side frames of paper folding machine to support rollers, gears and folding cylinders. Some holes must be aligned vertically and others horizontally.

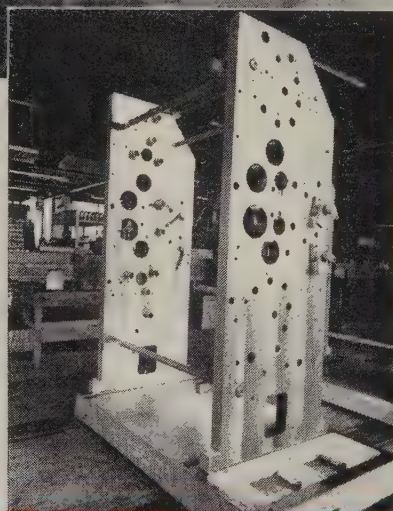
THE SOLUTION

Mount pair of side frames, 5/8" apart, on table of 4" Bullard H.B.M., Model 75, equipped with automatic table and head positioning. Bore all holes of the same size beginning with the largest and working down to the smallest.

THE ADVANTAGES

All related holes in perfect alignment — no spoilage. Less tool change-over time.

Eliminate hand measurements and templates for hole location. Accurate automatic hole location within a tolerance of $\pm .0004"$. Ease of operation from Pendant Control — less operator fatigue. Overall boring time reduced 25% over previous method.

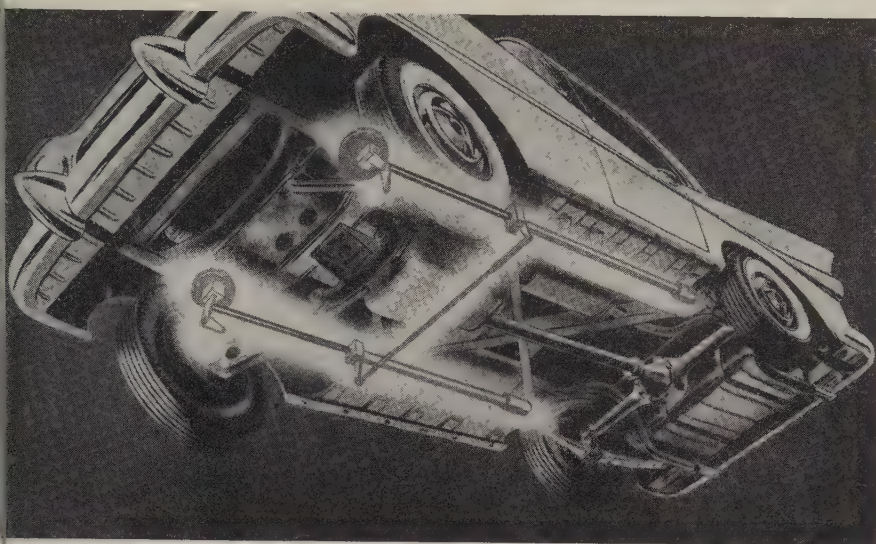


Partially assembled side frames ready for ink rollers, gears and printing cylinders.

How about your boring problems? Are you applying all the advantages of a Bullard H.B.M., Model 75 to them? If not — get the full story from your nearest Bullard Sales Engineer or write

THE BULLARD COMPANY

BRIDGEPORT 9, CONNECTICUT



Units sketched under passenger car are more popular than air bags

Torsion Springs Still Strong

FAILURE OF AUTOMAKERS to sell many air suspension units this year has been bringing "I told you so" smiles from leaf, coil, and torsion spring producers. More important, it has caused the builders to re-evaluate their products. The result is a rash of ideas in conventional springing systems that may keep air bags in the minority indefinitely. Ward's *Automotive Reports* says the industry will install fewer than 100,000 air springs on 1958 cars—about 2.5 per cent of the model year's output and less than half the number carbuilders had hoped for. Critics claim the big reason for the lack of sales is that buyers can't tell the difference in the ride. (There's only about 11 cycles per minute difference in the frequency rate between coil and air springs in Cadillac's system.)

—————Actually, this is only one of the reasons. The big difference is cost. Air springs run \$125 to \$215 higher than typical steel

spring arrangements. One indication that cost is a major factor pops up in Ward's statistics that show Cadillac to be the big air spring user with 12 to 15 per cent of its output in bellows, vs. less than 1 per cent for Ford and Rambler.

But costly or not, auto companies have sunk too much money into air spring tooling to junk them, and indications are they will continue as optional equipment for some time. Meanwhile, vendors who build regular suspension systems are doing what they possibly should have done ten years ago—start looking for ways to improve their units without boosting costs completely out of sight.

Why Change? — Most work has been on torsion bars which first appeared on Packard and later adopted by Chrysler for its lines. Chrysler, incidentally, will introduce optional air springs on some of its 1959 models, but Detroit sees it more as a sales gimmick than a

serious attempt to market the bellows.

Among more recent developments are split, hairpin, and laminated torsion units. Eaton Mfg. Co., Cleveland, has been active in researching laminated torsion bars. The laminated units (now used on Volkswagens) are reportedly 12 to 15 per cent less expensive to make because they're little more than strips of steel (SAE 6150) which are cut off and stacked six deep to form a torsion bar. This eliminates the manufacturing operations needed to upset the ends of cold finished bars used in Chrysler's system. The laminated setup offers more safety because one leaf can split without dropping the whole body on the axles, which is what happens when an air bag springs a leak.

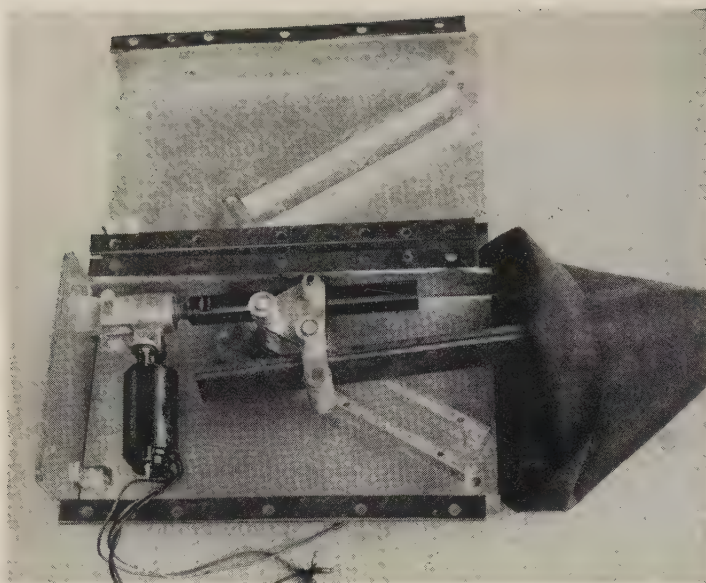
Shorter, Too—Mather Spring Co., Toledo, Ohio, likes the laminated bars not only because they cost less but also because they don't have to be as long to give the same ride characteristics. Richard E. Hanslip, Mather's chief development engineer, says laminated rods will be 25 per cent shorter than bars doing a comparable job. But he admits: "The laminated bars do have a 12 to 13 per cent weight penalty over round bars."

A GM suspension engineer agrees with Mr. Hanslip and adds: "All this means is that laminated bars look like a better bet for a smaller car where weight isn't as big a problem." Right now that's something GM is interested in, and it will be cheaper than the air-hydraulic system Chrysler reportedly is investigating.

And Safer—It's also possible laminated bars may be the answer to another problem common to torsion suspension systems—socket wear. Present torsion bars are seated in socket housings; bar flexing results in loose fittings. There have been few reports of bars slipping out, but it is a potential safety hazard and also a factor which affects damping characteristics.

Mr. Hanslip says Mather has been bending the ends of laminated bars at angles so they can be bolted in place. He believes tests will prove

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This mechanical levelizer has been developed by Mather Spring Co. to be used with leaf springs. The company figures it can be built for less than half the cost of similar units now on the market. The unit is mounted on the frame behind the rear axle. A switch between the frame and axle starts the reversible electric motor when extra weight is added to the body. The motor pushes out a screw jack which forces the end of the spring down into the tracks. This shortens the spring and raises the body and the spring rate at the same time. Result: Ride characteristics remain the same no matter what position the spring is in. The levelizer will correct for 750 lb of extra load on the rear axle. It can be turned on or off by switches in the door frames, rear deck lid, and dash

this is an economical fastening method that will eliminate socket wear problems. He adds that inter-leaf friction between laminations does not appear to be serious.

Other Ideas — While laminated torsion bars appear to be best suited to smaller cars, Mather thinks its split tube torsion springs may be as economical and perhaps better suited to larger automobiles.

The split tube is simply a torsion bar doubled back on itself. In effect, this makes a spring that Mr. Hanslip says is 73 per cent of the length of a round bar and gives 10 per cent more twist. Result: More variable reaction to wheel bounce and a softer ride than can be obtained from a solid bar of the same length.

Another design developed by Mather is a hairpin spring. Mr. Hanslip says it can be compared to the outside bars of a laminated pack with middle ones removed. Between the flat bars is a conventional round torsion bar. This device is used on heavy duty truck-trailers. It eliminates a series of small, short-lived gears which help

transmit torque from one torsion unit to another.

Leaves Lively—Torsion bars are just as costly as coil springs, but a lot easier on shock absorbers. Mr. Hanslip believes there's plenty of life left in leaf springs. As he puts it: "Leaf springs are a complete suspension in themselves. They provide a comfortable ride, absorb shock, keep the rear wheels in contact with the road, and transmit driving force of the wheels to the automobile body."

He points out that air suspension system don't hold axles in place; additional stabilizing devices, torque rods, and tracking systems are needed. As a result, Mr. Hanslip says: "While the air springs themselves may be fairly light, all the extra holding, damping, and auxiliary gadgets are more expensive and add to the total weight." The leaf spring also has only two ways for road shock to travel up into the body (through the two mounting eyes), but with air suspension there are many paths by which road jars and bounces can be transmitted to the rider. One item still

lacking in leaf springs is a simple levelizer and Mather may also have the answer to that (see photo).

Don't Stagnate—The spring story boils down to this: Air springs won't be scrapped because the industry has too much money invested in them, and they seem suitable for trucks. But if suppliers get busy and explore all the potential in leaf, coil, and torsion units, it will be a long, long time before bellows are standard equipment on Detroit products.

Argentine Willys Expands

Industrias Kaiser Argentina, an affiliate of Willys Motors Inc., Toledo, Ohio, will build a \$1-million integrated forge facility at its automotive manufacturing plant in Cordoba, Argentina. Steel Improvement & Forge Co., Cleveland, will supply another \$1 million worth of equipment. IKA builds Jeep vehicles and the Kaiser Carabela passenger car in Argentina—currently at an annual rate of 24,000 units. About 70 per cent of the vehicles (by weight) are built there.

The joint venture by Willys and Steel Improvement will result in a forge plant scheduled to produce 10,000 tons of forgings by the end of 1961. Most of the output is for use in Jeeps and cars, but Willys says a limited quantity will be available for Argentine railroad, shipbuilding, and aircraft industries.

U. S. Auto Output

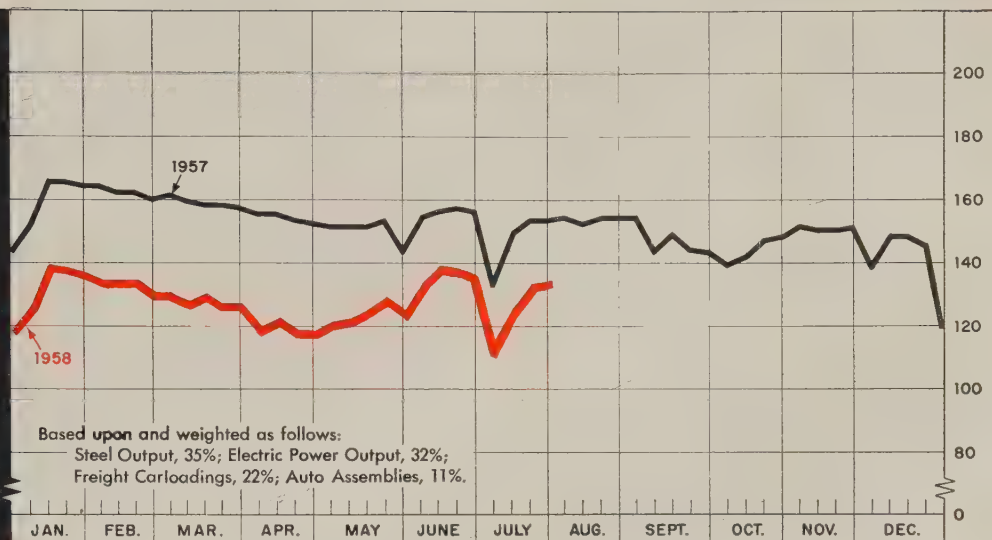
	Passenger Only 1958	1957
January	489,357	642,090
February	392,112	571,098
March	357,049	578,826
April	316,503	549,239
May	349,474	531,365
June	337,355	500,271
6 Mo. Total	2,240,850	3,372,889
July		495,629
August		524,354
September		284,265
October		327,362
November		578,601
December		534,714
Total		6,117,814
Week Ended	1958	1957
June 28	92,277	125,909
July 5	35,273	73,682
July 12	73,062	111,943
July 19	85,533	117,205
July 26	86,578†	119,857
Aug. 2	80,000*	119,323

Source: Ward's Automotive Reports.
†Preliminary. *Estimated by STEEL.

STEEL INDUSTRIAL PRODUCTION INDEX

(1947-1949=100)

LATEST WEEK	134
PREVIOUS WEEK	133
MONTH AGO	136
YEAR AGO	154



*Week ended July 26.

Appliances up as Consumers Spend More

APPLIANCE BUYING trends may be the first indicator that consumers can stop the recession in its tracks in the late third or early fourth quarter. Although steelmakers report no major pickup in orders from appliance makers (and a sudden strike at General Electric's Appliance Park, Louisville, slowed production early last week), there are abundant signs of an increase in appliance sales.

Once the inventory of unsold goods is depleted, steel orders are certain to gain. This should give the economy a brighter hue by the end of this year.

Gains at GE—General Electric Co. reports June appliance sales exceeded year-ago totals—the first time this year that any month topped the similar 1957 period. Company officials say inventory reduction was largely completed. Adds James H. Goss, vice president: "The upturn has not been spectacular, but we think the balance of the year will see our sales increasingly generally."

And at Westinghouse—"A gradual gain in sales has taken place over the last month. Although it's moderate, a variety of products are affected," comment appliance sales officials at Westinghouse Electric Corp., Pittsburgh.

Hot weather stimulated the advance in some appliance sales, says

Dun & Bradstreet Inc. Demand for air conditioners and fans expanded last week.

Weather can't explain the strength of other appliance lines. Interest in refrigerators, dishwashers, and automatic laundry equipment perked up in May and remains high. The American Home Laundry Manufac-

turers Association, Chicago, says June factory sales of home laundry appliances amounted to 350,073 units, up 13 per cent from May. June was the second consecutive month that sales showed an increase over the preceding month and the year-ago period. Leading the advance are dryers, up 29 per

BAROMETERS OF BUSINESS

INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Production (1000 net tons) ²	1,586 ¹	1,546	2,092
Electric Power Distributed (million kw-hr)	12,200 ¹	12,257	12,243
Bituminous Coal Output (1000 tons)	7,645 ¹	1,320	9,940
Crude Oil Production (daily avg—1000 bbl)	6,550 ¹	6,528	7,101
Construction Volume (ENR—millions)	\$455.4	\$733.0	\$393.6
Auto, Truck Output, U. S., Canada (Ward's)	108,870 ¹	109,811	150,605

TRADE

Freight Carloadings (1000 cars)	580 ¹	582	736
Business Failures (Dun & Bradstreet)	279	275	266
Currency in Circulation (millions) ³	\$31,217	\$31,375	\$30,999
Dept. Store Sales (changes from year ago) ³	+2%	+5%	+5%

FINANCE

Bank Clearings (Dun & Bradstreet, millions)	\$23,180	\$23,657	\$21,569
Federal Gross Debt (billions)	\$275.8	\$275.6	\$272.8
Bond Volume, NYSE (millions)	\$24.9	\$27.5	\$15.6
Stocks Sales, NYSE (thousands of shares)	18,581	15,415	9,032
Loans and Investments (billions) ⁴	\$94.2	\$94.5	\$87.1
U. S. Govt. Obligations Held (billions) ⁴	\$32.2	\$32.3	\$25.6

PRICES

STEEL's Finished Steel Price Index ⁵	239.15	239.15	239.15
STEEL's Nonferrous Metal Price Index ⁶	198.6	198.7	216.6
All Commodities ⁷	119.3	119.3	118.0
Commodities Other than Farm & Foods ⁷	126.0	125.7	125.4

*Dates on request. ¹Preliminary. ²Weekly capacities, net tons: 1958, 2,699,173; 1957, 2,559,490. ³Federal Reserve Board. ⁴Member banks, Federal Reserve System. ⁵1935-39=100. ⁶1936-39=100. ⁷Bureau of Labor Statistics Index, 1947-49=100.

Coming . . .
August 11 in

STEEL

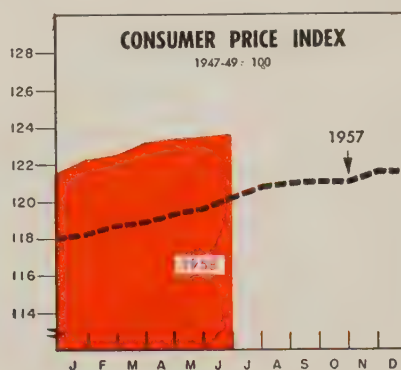
Hard-Time Selling

Successful selling in other than boom times rests on management knowing the right answers to some sticky questions.

What can be done to insure maximum production from salesmen? How can the number of calls per salesman be increased? How can more thorough coverage of prospects be attained? How flexible should prices be? Is quality the big selling point rather than price? How big a factor is delivery—should it be stressed?

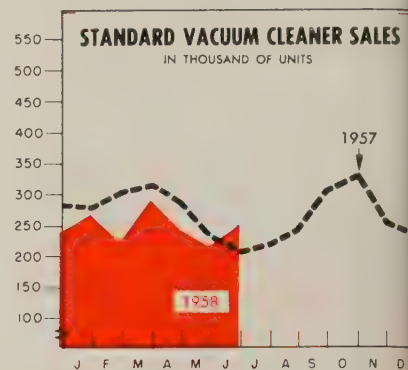
STEEL will explore these and other questions in the Aug. 11 issue. After years of prosperity, selling sometimes becomes a forgotten art. The company that expects a profitable operation is going to have to take a penetrating look at its sales setup. The Aug. 11 story will tell how to do it and what to look for.

THE BUSINESS TREND



	1958	1957	1956
Jan.	122.3	118.2	114.6
Feb.	122.6	118.7	114.6
Mar.	123.3	118.9	114.7
Apr.	123.5	119.3	114.9
May	123.6	119.6	115.4
June	123.7	120.2	116.2
July		120.8	117.0
Aug.		121.0	116.8
Sept.		121.1	117.1
Oct.		121.1	117.7
Nov.		121.6	117.8
Dec.		121.6	118.0

U. S. Bureau of Labor Statistics.
Charts copyright, 1958, STEEL.



	1958	1957	1956
Jan.	265,489	276,738	302,203
Feb.	225,631	300,887	286,386
Mar.	291,418	312,746	395,686
Apr.	247,293	281,627	352,873
May	218,766	231,246	326,008
June	253,127	207,286	248,326
July		218,276	259,774
Aug.		241,218	276,932
Sept.		302,869	320,278
Oct.		328,655	371,998
Nov.		251,123	300,381
Dec.		237,501	281,025

Totals 3,190,172 3,721,870

Vacuum Cleaner Mfrs.' Assn.

cent from May and up 14 per cent from June, 1957.

Sales of standard-size household vacuum cleaners in June were added proof that the American homeowner is beginning to increase his appliance buying. The Vacuum Cleaner Manufacturers Association, Cleveland, says sales in that month were 22 per cent higher than they were in the corresponding month of 1957. June totals were "substantially" better than those of previous months, the association comments. The first six months of this year were 6.8 per cent below the similar period of 1957.

More Gains Needed—While the reports encourage optimistic second half business predictions, few business analysts are willing to predict an early end to the recession. An increasing number of business reporters believe that the downtrend in general business activity has come to a halt, having touched bottom in April or May. Before trendlines can gain much momentum on the upside, improvement in several other areas is a must.

In Housing—Although the start rate is advancing, figures on mortgage recordings don't reveal any important uptrend in rate of new home sales, says the National In-

dustrial Conference Board Inc., New York.

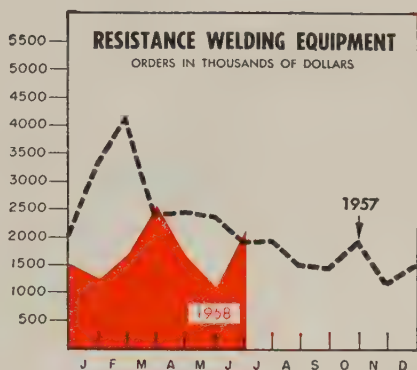
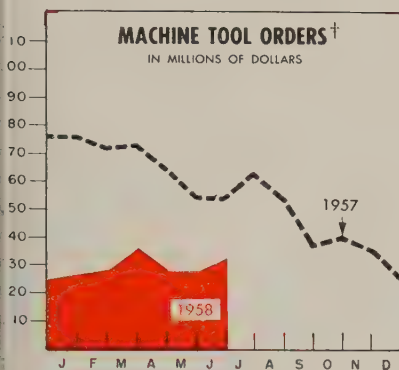
A House banking subcommittee last week approved a measure to make new homes easier to finance and to expand federal spending on slum clearance and urban renewal. An antirecession tool, it reportedly goes "far beyond" administration housing plans.

In Capital Spending — NICB points to continued declines in outlays for plant and equipment as further evidence that the recession is still felt. It's doubtful that the rate of new orders for capital equipment will improve before the end of the year.

Despite the unfavorable outlook, there's evidence that steelmakers won't sit on their hands for long. Inland Steel Co., Chicago, recently authorized capital outlays of \$114 million. A portion of the \$300 million recently appropriated by U. S. Steel Corp., Pittsburgh, is for expansion.

Building Sets Fast Pace

Construction continues to act as if there is no such word as recession. Contracts totaled \$455.4 million for the week ended July 24, boosting the cumulative total for 30 weeks of



	New Orders		Shipments	
	1958	1957	1958	1957
Jan.	26,850	75,500	57,800	99,900
Feb.	28,300	71,900	48,050	103,350
Mar.	36,150	72,750	54,150	115,600
Apr.	28,300	64,300	50,900	110,650
May	28,050	53,650	50,100	104,300
June	32,600*	52,800	45,400*	106,950
July	.....	62,650	.....	81,450
Aug.	.....	52,900	.....	78,300
Sept.	.....	36,750	.....	82,050
Oct.	.....	39,700	.....	76,050
Nov.	.....	35,150	.....	59,750
Dec.	.....	24,850	.....	70,100
Totals	.....	642,900	.....	1,088,450

†Metalcutting and metal forming.
*Preliminary.
National Machine Tool Builders' Assn.

	Net Orders		Shipments	
	1958	1957	1958	1957
Jan.	1,243	3,310	1,422	3,161
Feb.	1,683	4,161	1,615	2,386
Mar.	2,550	2,360	1,659	2,845
Apr.	1,684	2,429	1,963	3,111
May	1,121	2,340	1,750	2,891
June	2,113	1,936	2,346	2,735
July	.....	1,943	.....	3,194
Aug.	.....	1,501	.....	2,591
Sept.	.....	1,463	.....	2,523
Oct.	.....	1,933	.....	1,953
Nov.	.....	1,167	.....	2,227
Dec.	.....	1,501	.....	1,969
Totals	.....	26,044	.....	31,591

Resistance Welder Manufacturers' Assn.

1958 to \$11.8 billion. That's 7 per cent higher than corresponding 1957 period.

Contracts in June totaled more than \$3.8 billion, F. W. Dodge Corp., New York, reports. That's the highest total for any single month. June contracts were 12 per cent above the previous record—set only one month earlier.

Advances in construction are reflected in higher bookings of fabricated structural steel. The American Institute of Steel Construction Inc., New York, says June bookings were the highest in 13 months. New orders reached 286,798 tons in that month, marking a gain of 60,000 tons in one month and an advance of 16 per cent in one year.

Index Moves Up

STEEL's industrial production index gained another point in the week ended July 26. Steel and electric power output, freight carloadings, and auto assemblies shared in the advance, as each firmed slightly. At a preliminary 134 (1947-49 = 100), the index isn't far below the high for this year.

Automakers will trim operations in August for model changeover, but look for improved readings in

the index as production of '59s increases in early fourth quarter.

Prices Still Rise

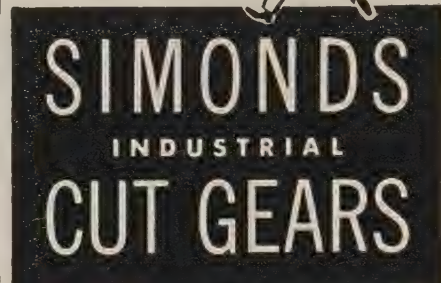
Relief from spiraling prices is not in sight. The Labor Department reports that the consumer price index rose 0.1 per cent between May and June to 123.7 per cent of the 1947-49 average.

Ewan Clague, the department's commissioner of statistics, says some signs point to a decline of the index for seasonal reasons in August.

The wholesale index of primary market prices remained unchanged at 119.3 per cent of the 1947-49 level in the week ended July 22, 1958, the Labor Department adds. Lower prices on farm products and processed foods were offset by higher average prices of other commodities.

Trends Fore and Aft

• New orders for industrial furnaces totaled \$3,672,000 in June, reports the Industrial Heating Equipment Association Inc., Washington. Although volume is up substantially from the first six months' average of \$3 million, it's well below the 1957 pace.



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* * *

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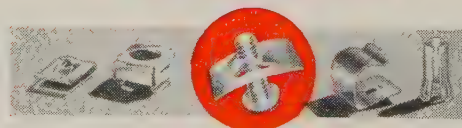
These SPEED NUT fasteners, developed by joint efforts of Tinnerman and Westinghouse designers, eliminate special adjusting thumb-screws. Only 2 SPEED NUT parts serve the purpose of several stampings and ordinary fasteners. Material and assembly costs are lower than with ordinary fastening methods. And the consumer gets a better fan that's easier to adjust.

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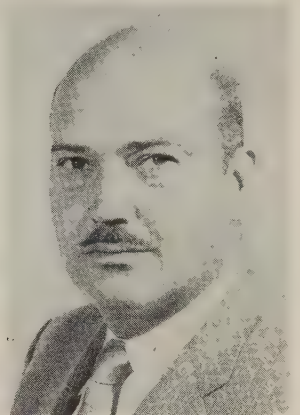
J. CARL FERGUSON
Kaiser Alum. div. sales mgr.



HAMPTON W. CAMPBELL
Lynchburg Foundry gen. mgr.



OLAV MOKLEBUST
R N pilot plant supt.



JAMES L. WHEELER
Clearing die division mgr.

J. Carl Ferguson was made general sales manager, electrical conductor division, Kaiser Aluminum & Chemical Corp. Gillette N. Houck was made manager of promotion and technical development. The division's field engineering, marketing, and administrative departments were moved from Chicago to the electrical conductor production plant at Newark, Ohio. Mr. Ferguson and his staff remain in Chicago. R. J. Harrison was promoted from assistant product manager to manager of utility sales at Chicago.

Hampton W. Campbell was elected general manager, Lynchburg Foundry Co., Lynchburg, Va. He was assistant general manager.

Charles E. Clark was appointed assistant superintendent of the 98-in. cold strip mill department at the Cleveland steel plant of Republic Steel Corp.

William R. Milliken was appointed manager of stainless bar and wire sales by Universal-Cyclops Steel Corp., Bridgeville, Pa. He previously served as assistant to the manager of alloy sales, United States Steel Corp. George C. Bush was made general traffic manager for the company.

R. W. Brown and R. E. Bish were appointed manager and engineering section manager, respectively, of the fuel products section, materials manufacturing department, Westinghouse Electric Corp., Pittsburgh. J. Q. A. McClure was named manager of manufacturing of that section.

Olav Moklebust was appointed superintendent of the pilot plant operated by R-N Corp. in Birmingham. He was formerly director of the Titania A/S pilot plant activities at Sokndal, Norway. R-N is jointly owned by National Lead Co. and Republic Steel Corp.

Sheffield Steel Div., Houston, Armco Steel Corp., appointed A. C. Richards superintendent of plate mills and special products department. He succeeds Elmer Lynch, who was given a special assignment by the plant manager. Edward M. Parson succeeds Mr. Richards as assistant superintendent of plant mills.

Robert G. Gersteneker was elected vice president and controller of Phoenix Iron & Steel Co., Phoenixville, Pa., subsidiary of Barium Steel Corp.

Homer L. Shaw was named assistant supervisor of tubular research at Youngstown Sheet & Tube Co.'s new Youngstown tubular research laboratory. He was with Battelle Memorial Institute, where he was assistant consulting metallurgist in the ferrous division.

C. M. Lewis was named to the new post of manager, systems marketing, industrial electronic products, Radio Corp. of America, New York. He was manager, marketing plans, telecommunications division.

Melvin H. Creter was appointed assistant superintendent of industrial relations, Union Drawn Steel Div., Republic Steel Corp., Massillon, Ohio.

James L. Wheeler was appointed general manager, die division, Clearing Machine Corp., Chicago, division of U. S. Industries Inc.

Jack I. Stahl joined Servo Corp. of America, New Hyde Park, N. Y., as production manager, manufacturing division. He was production engineer at Fairchild Camera & Instrument Corp.

James Deshler II was elected chairman, Minerals & Chemicals Corp. of America, Menlo Park, N. J. The office of chairman of the executive committee, formerly filled by Mr. Deshler, has been eliminated.

John C. Hampson was appointed regional manager of the Pittsburgh office of Pennsalt Chemicals Corp., industrial division. He replaces William P. Snelsire, retired.

Noble C. Harris was appointed to manage Washington operations of Singer Mfg. Co., military products division, a new post. He was on the headquarters staff, missile systems division, Raytheon Mfg. Co.

Convair Div., San Diego, Calif., General Dynamics Corp., appointed A. P. Higgins assistant to the division manager-military relations; J. H. Famme, works manager of Plant No. 2; W. W. Fox, assistant chief engineer. W. C. Keller was appointed to Convair's general office military relations staff.

Joseph E. Harkins and Bruce E. Dane were named territory managers for the south-central and mid-east regions, respectively, by Alloy

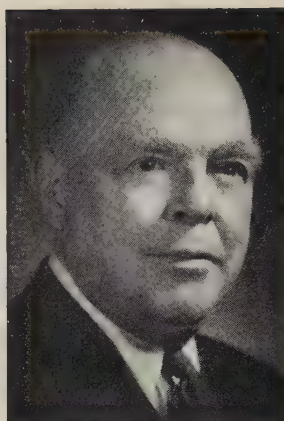


CARL D. McWADE



HARRY L. WILLIAMSON JR.

join Black & Decker on special assignments



JOHN E. JACOBS



WILBUR G. SMITH

appointments at Bethlehem Steel Corp.

Tube Div., Carpenter Steel Co., Union, N. J.

Carl D. McWade and Harry L. Williamson Jr. joined Black & Decker Mfg. Co., Towson, Md. Their duties consist of special assignments connected with product planning and development. Mr. McWade was director of marketing services at Skil Corp. Mr. Williamson was with General Electric Co. as manager-marketing, Weathertron Div.

Earl K. Schafer was appointed assistant sales manager, McGill Mfg. Co. Inc., bearing division, Valparaiso, Ind.

Leslie H. Gillette, western regional sales manager for Magic Door, was made manager of industrial sales for Stanley Hardware Div., Stanley Works, New Britain, Conn. He succeeds James K. Buckwalter, who resigned to become vice president-sales of Linen Thread Co. Inc.

Harvey K. Waters was named manager of the Minneapolis district office of Whiting Corp. He was formerly at the North Carolina district office. Melvin J. Beagle Jr., formerly of Swenson Evaporator Co., division at Harvey, Ill., was transferred to the company's office in Houston.

Allis-Chalmers Mfg. Co. named Y. S. Hogg manager of its Tampa, Fla., district office.

Edward Meyer was appointed chief production engineer at the American Optical Co. plant in Buffalo. He succeeds Kenneth L. Pursell, named manager of the Keene, N. H., plant. Mr. Meyer was manager of lens manufacturing, Buffalo plant.

John E. Jacobs, general manager of Lackawanna, N. Y., plant, Bethlehem Steel Co., was appointed assistant vice president, steel division, with headquarters in Bethlehem, Pa. He is succeeded at the Lackawanna plant by Wilbur G. Smith. Robert M. Jordan, assistant superintendent of the Lackawanna open hearth division, was made an assistant general manager.

Thomas Harris was elected vice president, Structural Fibers Inc., Chardon, Ohio.

John R. Harbaugh was made manager of the new Houston district sales office of Jessop Steel Co.

H. E. Murray joined Erler Pattern & Model Corp., Toledo, Ohio, as chief engineer, plastics products division. He was with Barrett Div., Allied Chemical Corp.

James D. Mixon was appointed field service engineer at the Process Instruments Div. office, Chicago, Beckman Instruments Inc.

Vincent P. Mahon, formerly sales representative in Houston, becomes branch manager at Boston for Lunkenheimer Co. He succeeds Harold T. Wilbur, retired.

R. E. Shook was appointed sales manager, pulp and paper equipment division, Sprout, Waldron & Co. Inc., Muncy, Pa.

Virgil E. Urbine was named to head the customer-plant mechanics department in the Detroit area for Electric Auto-Lite Co.

Owatonna Tool Co., Owatonna, Minn., elected John Mullenmaster

vice president and director of sales. Eastern sales are headed by Robert Allyn; western sales by William Murray.

Pacific Coast Foil Co., San Francisco, appointed M. T. Schechtman general manager.

George Steven was made manager of Worthington Corp.'s Buffalo plant. He succeeds Austin C. Ross, who retires as general manager of the plant and a vice president of Worthington.

Joseph F. Taylor was made an executive in Maurey Mfg. Corp.'s expanding V-drive sales division, Chicago. He was manager of V-belt sales for Goodyear Rubber Co.

I. Kirk Schlamp was made general manager, Ravenna Metal Products Div., Seattle, Standard Screw Co. Formerly factory manager, he replaces Kemp O. Hiatt, retired.

Joseph J. Ranna was promoted to manager of the New Orleans district sales office, A. M. Lockett & Co. Ltd., sales subsidiary of Babcock & Wilcox Co. He is replaced as assistant manager by G. Michael Bacich Jr.

Albert J. Woods was appointed Buffalo district manager covering New York State for Latrobe Steel Co. He is at Cheektowaga, N. Y.

Saul Padwo was made assistant to the vice president, Yardney Electric Corp., New York.

Edward A. Toomey was named manager of Yale & Towne Mfg. Co.'s Forrest City, Ark., manufacturing plant. He succeeds Ressler

Seeking an answer to the squeeze on profits?



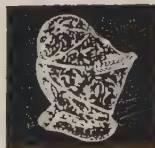
The economic outlook makes searching re-appraisal of production techniques a must these days. For in the ever-shrinking gap between selling price and cost lies the future and vitality of every business.

While the answer to cost reduction in any particular company is never simple, let's examine, for a moment, the relatively narrow problem of stamped parts production, a factor in many metalworking businesses. While the use of stampings, rather than machined or cast parts, means economy in itself, there is still a vast potential for savings in their production.

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As you might presume, the "Flying Press" costs more initially than ordinary presses of the same tonnage. It costs more because it offers far greater production, versatility, and operating economies . . . and costs more to build. (We're in the same position you are, after all.) But even with this higher equipment cost to be amortized against production, the "Flying Press" produces stamped parts in the most economical way yet devised. Certainly, if you use stampings extensively in your production process, you should know more about this unusual piece of equipment.

We'd like to send you a brochure that describes the "Flying Press" and its advantages. Then, if you are interested in how it can apply to your specific production processes, we'll be glad to explore the matter further with you. We can even run your dies on a demonstration machine at our Cleveland plant. Please let us hear from you.

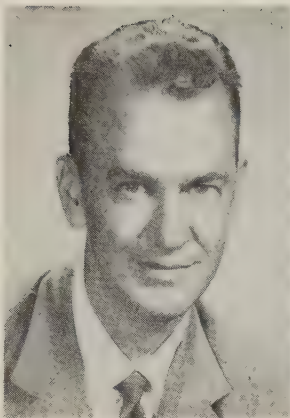


WEAN

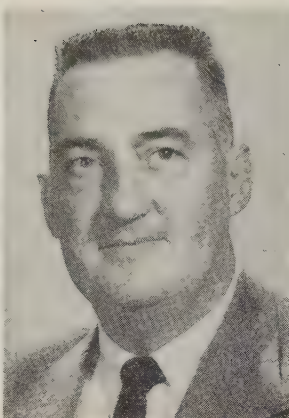
WEAN EQUIPMENT CORPORATION

CLEVELAND 17, OHIO

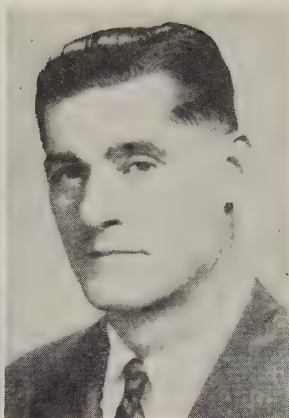
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STEPHEN B. ELGGREN
rejoins Bell Aircraft



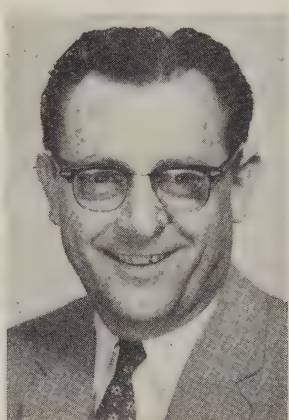
PAUL L. BRUHN
Truscon Steel manager



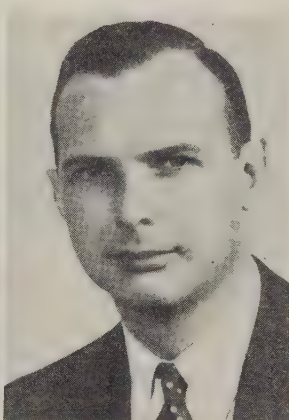
PAUL P. POLONEC
RB&W plant supt.



JAMES G. GELDER
Diamond Power div. marketing



BURTON J. NADEN
Vascoloy-Ramet post



ROBERT J. HEISTER
Byers Pittsburgh div. mgr.

A. Dusseau, named a special assistant to the president.

James G. Gelder was appointed marketing manager, electronics division, Diamond Power Specialty Corp., Lancaster, Ohio. He was sales manager, process control systems, for Philco Corp.'s government and industrial division.

Burton J. Naden was appointed to the new post of general sales manager, Vascoloy-Ramet Corp., Waukegan, Ill. He was assistant manager, general products department.

James Reid was made manager, field services department, Baker Perkins Inc., Saginaw, Mich. He succeeds A. S. Wallace, retired.

Joseph C. Schilling was elected vice president, Standard Mfg. Corp., Chicago.

Northrop Aircraft Inc., Beverly Hills, Calif., elevated Robert R. Miller and Thomas V. Jones to senior vice presidents.

Robert J. Heister was appointed manager of the Pittsburgh division of A. M. Byers Co. He was a field service engineer.

William W. Kearney was appointed manager of manufacturing, Baker Industrial Trucks Div., Otis Elevator Co., Cleveland. He was manager of production control.

Marlin Kirk was made sales manager, Potter & Brumfield Canada Ltd., subsidiary of Potter & Brumfield Inc., Princeton, Ind.

Henry W. Doctor, as president, heads the newly formed Southern Steel Service Co. Inc. at Orlando, Fla. Mr. Doctor served Babcock & Wilcox Co. for 25 years.

R. H. Smitter was made general sales manager, Waugh Engineering Co., Van Nuys, Calif.

Dr. Walter Welkowitz was made director of engineering, Vibro-Ceramics Div., Gulton Industries Inc., Metuchen, N. J.

Stephen B. Elggren, a former assistant vice president, Bell Aircraft Corp., Buffalo, has returned to the company in the new post of sales manager for the Niagara Frontier Div.

Paul L. Bruhn succeeds Douglas K. Forsyth, retired, as manager of Republic Steel Corp.'s Truscon Steel Div., Youngstown. Mr. Bruhn was manager of the Berger Div. in Canton, Ohio.

Paul P. Polonec was named plant superintendent at the Rock Falls, Ill., plant of Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y. He was general foreman of the wire mill at the Port Chester plant.

Sidney R. McKinnon was appointed director of purchases for McDowell Co. Inc. and associated companies, Cleveland.

Othmar Besch was advanced to chief engineer at Spincraft Inc., Milwaukee.

Grant Gear Works Inc., Boston, named Forrest Emery sales manager.

Lewis Marks was appointed sales manager, Disogrin Industries Inc., Mt. Vernon, N. Y. He was manager, midwest division, Polymer Industries Inc.

OBITUARIES...

Alan M. Scaife, 58, chairman, Scaife Co., Pittsburgh, died July 24.

Arthur W. Hughes, 67, vice president and general manager, Cleco Pneumatic Tool Co. of Canada, Toronto, Ont., died July 21.

George H. Jewell, 76, recently retired vice president, Glamorgan Pipe & Foundry Co., Lynchburg, Va., died July 17.

Herman J. Manzel, 85, president, Manzel Bros. Co., Buffalo, died July 18.

Winfred E. Fouse, cofounder of General Tire & Rubber Co., Akron, died July 23.

Fred C. Bonar, 60, manager of manufacturing operations for Mahoning Valley Steel Corp., Niles, Ohio, died July 11.

Acquires Foundry

Consolidated Iron-Steel Mfg. Co. broadens operations in procuring **Ohio Foundry Co., Cleveland**

CONSOLIDATED IRON-STEEL Mfg. Co., Cleveland, has acquired **Ohio Foundry Co.'s** plant and equipment at 2469 E. 71st St. and its light foundry equipment at 9812 Quincy Ave., that city. The property at the latter address has been leased by **Ohio Foundry Co.** to **Carling Brewing Co.**

Consolidated will combine Ohio's light foundry operations with its **Taylor & Boggis Div., Euclid, Ohio.** **Joseph Hanks Jr.**, general manager of this division, will be in charge of the new facilities.

Henry J. Trenkamp and **Henry Trenkamp Jr.** will become executives of the **Ohio Foundry Div.** which will continue operations at the 71st Street address. Officers of **Consolidated Iron-Steel Mfg.** are: **Chairman, I. T. Kahn**; **president, L. S. Cawrse**; **vice presidents, Joseph Hanks Jr. and J. F. Maine**; and **secretary-treasurer, Roy J. Foster.**

Consolidated's divisions are: **Republic Structural Iron Works, Republic Welding & Flame Cutting Co., Taylor & Boggis Foundry Co., Ackerman Plastic Molding Co., and Cleveland Lock Works.** **Republic Structural Akron Service** is owned by the same interests and has its own steel fabricating plant and warehouse in **Akron.**

Cummins Engine Builds

Cummins Engine Co. Inc., Columbus, Ind., is adding 300,000 sq ft of floor space to its plant. Cost of the new facilities, including equipment: More than \$6 million. Total capital expenditures for 1958 will exceed \$12 million.

Refractories Div. Expands

Construction is more than 75 per cent completed on a multimillion dollar sea water magnesia and basic refractories plant at **Pascagoula, Miss.** The facility of the **Refractories Div., H. K. Porter Company Inc., Pittsburgh,** is scheduled to start operations late this year. Products will include chrome-magnesite,

magnesite-chrome, and periclase type basic brick in burned, unburned, and steel-encased bodies; and chrome and periclase specialties. **Ralph Rose** is manager of the basic refractories project; **W. R. Shaw,** plant manager; and **J. G. Bartel,** general superintendent.

Canadian Car Expanding

Operations of the **Turcot plant of Canadian Car Co. Ltd., Cote St. Paul, Montreal,** will be moved to the company's **Dominion plant in Ville St. Pierre.** Cost of the **Dominion plant expansion:** \$15 million.

Enlarges Research Center

Allegheny Ludlum Steel Corp., Pittsburgh, is enlarging its laboratory research center at **Brackenridge, Pa.** A new metallurgical laboratory, the largest unit planned for the firm's centralized research facilities, will be completed next summer. The center will have four buildings totaling 116,000 sq ft.

New Steel Service Center

General Sheet Steel & Plate Inc., a new organization, is absorbing two steel service centers in **Cleveland:** **Charles A. Rose Co. and General Sheet Steel Co.** The plant at 3000 **Lakeside Ave.** will be equipped with precision plate flame cutting equipment, shears, and other machinery necessary to cut plate sketches up to 12 in. thick. Officers are: **President, C. A. Rose**; **secretary, Myron Eckstein**; **vice president, Baird Tewksbury Jr.**; and **treasurer, M. E. Weiner.** **Messrs. Weiner and Tewksbury** also own **Coil Steel Corp. and Chesterland Steel Service Co.**

New Names Announced

Controls Section of Bendix Aviation Corp., Detroit, changed its name to **Industrial Controls Section.** Numerical controls, including machine control units, are produced there.

Uniseal Co., Los Angeles, changed its name to **Aero-Stat Co. of California.** The firm makes self-sealing fasteners.

Perlick Brass Co., Milwaukee, changed its name to **Perlick Co.** The firm produces refrigerated cab-

inets, ice cube makers, bottle coolers, soft drink dispensers, and brewery fittings.

Buy Carver Foundry Inc.

Wayne American Co. and C. H. Wheeler Mfg. Co., both of Philadelphia, have acquired **Carver Foundry Inc., Fairview Village (Norristown), Pa.** The **Carver** firm, operating independently, will produce gray iron castings weighing up to 4000 lb and nonferrous castings weighing up to 2000 lb.

DeVilbiss Forms Subsidiary

DeVilbiss Co., Toledo, Ohio, organized a subsidiary, **DeVilbiss Metal Fabricators Co.,** to provide finishing systems to industry. The new organization represents a consolidation of the **Peters-Dalton Div. of Detroit Harvester Co. and Newcomb-DeVilbiss Co.,** producers of industrial ovens, heavy-duty water-wash spray booths, part washers, dust collectors, and a wide variety of related equipment. Headquarters will be at 17900 **Ryan Rd., Detroit, Mich.** **Reber C. Stupp** is vice president and general manager of the new company; **J. W. Cornelius,** vice president-engineering; and **T. Kenneth McGuire,** vice president-sales.

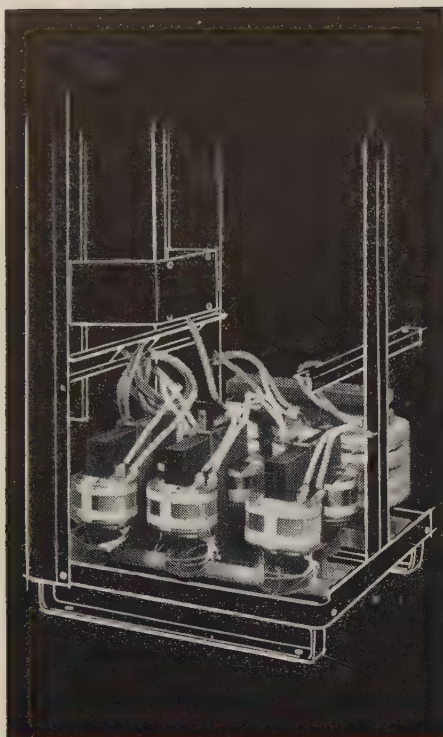
Forms Toll-Rolling Unit

To meet the demands for precision-rolled niobium (columbium) in the nuclear, electronic, missile, and aircraft industries, **American Silver Co., Flushing, N. Y.,** has set up a special division for the toll-rolling of this metal. The firm is producing niobium strip in thicknesses as low as 0.0005 in. to tolerances as close as 0.0001 in. The firm also produces tantalum, zirconium, titanium, and other of the newer metals in precision-rolled strip and foil.

Production Steel Expands

A \$5-million expansion program by **Production Steel Co., Detroit,** is being implemented with the launching of a subsidiary, **Production Steel Products Inc.** The new organization will offer a customer service program by stocking in-

(Please turn to Page 86)



**Strip
Conductor**



**Tubed
Sheet**



**Automobile
Grille**

Product, Part, Process:

Aluminum has a remarkably consistent record of cutting production cost, maintenance costs, shipping costs and/or improving products wherever it's used.

One reason for this is the great *versatility* of this strong, lightweight metal. It continues to surprise even designers and engineers who have worked with it for years; its applications sometimes seem endless.

Anodized Aluminum Strip Conductor, for instance, is *self-insulating*—the anodized film is a non-conductor. And, Reynolds Aluminum Strip Conductor offers equipment designers better electrical performance, reduced weight, lower costs in electro-magnetic applications.

Aluminum Tubed Sheet is another development that improves products, cuts costs. It enables the designer to send fluids through a sheet in

any pattern, any flow rate. Used for evaporators, Reynolds exclusive Tubed Sheet *one-side-flat* provides more and better storage space, easier cleaning. In addition, it does away with outside tubing, and the extra labor that it requires.

Cost-and-sales-conscious automobile men are using more aluminum every year, and one of their best uses is in automobile grilles. Aluminum grilles can be produced in a number of cost-cutting ways: extruding, roll-forming, stamping, extruding and perforating.

Aluminum, with its production flexibility, gives greater freedom to designers, as well as lower costs to manufacturers. It gives manufacturers a selling plus, too, because an aluminum grille, clear or color-anodized, won't chip, pit, peel, flake or rust.

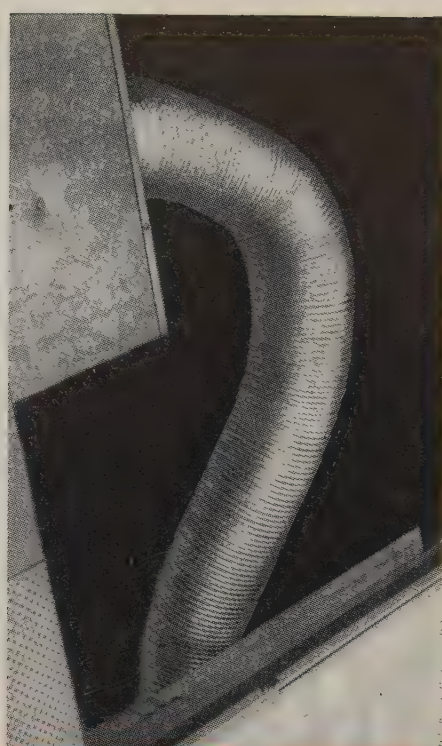
REYNOLDS



**Electric
Fry Pan**



**Glass and
Ceramics**



**Flexible
Duct**

all better, lower cost with Aluminum

Brazed-element aluminum fry pans can solve a lot of manufacturing problems. The element can be brazed to the pan body easily. With no surface porosity, the aluminum pan is easier to clean, more attractive. Brazed elements also provide faster, more even heat distribution.

Aluminum chemicals—hydrated, calcined and activated aluminas—serve many industries. Reynolds hydrates and calcines, for example, make glass and glazed ware more sparkling, ceramics more heat resistant, less breakable.

Reynolds Wrap aluminum foil is best known for its 1,001 home uses, but industry uses foil, too. For example, the walls of flexible tubing. This tubing is tough, flame resistant, and has good reflective insulation and air-flow characteristics. It is said to cut air conditioning duct installation costs up to 30%.

Take advantage of aluminum's versatility, and production flexibility. Design in aluminum for improved products, lower costs. For details on the characteristics of various aluminum alloys—or for technical assistance—contact Reynolds Design and Engineering Service through your local Reynolds office.

*Reynolds Metals Company, P. O. Box 2346-JL
Richmond 18, Virginia*

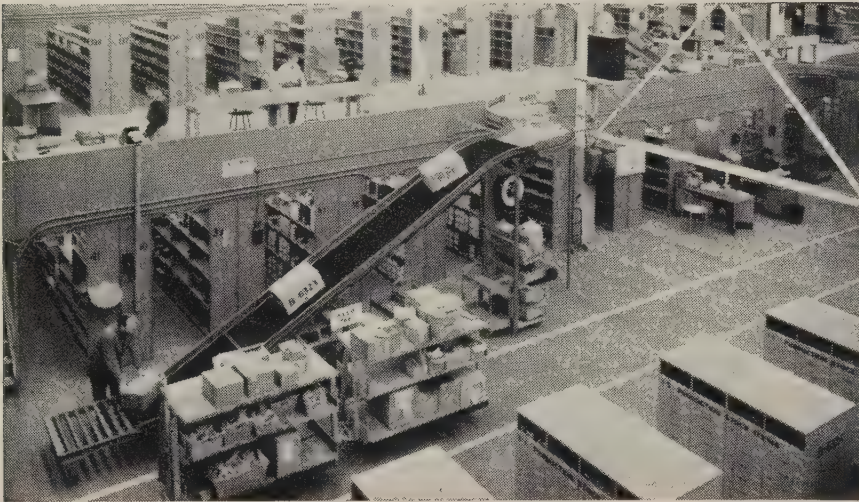
ALUMINUM

Watch Reynolds All-Family Television Program,
"DISNEYLAND", ABC-TV.



Ask Standard

how to
cut costs with
conveyors



One of two Inclinebelt conveyors that carry parts to reversible live roller conveyor at second level. Belt conveyors are reversible to bring down outgoing parts. Note minimum space used for conveyors.

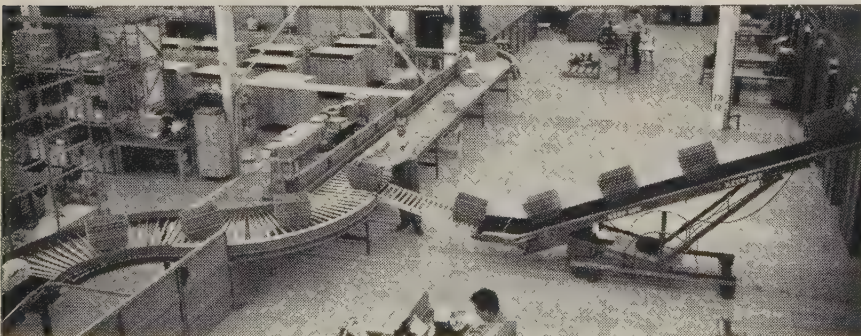
Multi-level conveyors help Douglas Aircraft CUT STORAGE AREA BY $\frac{2}{3}$

When it's difficult to spread out — look up! That's what the El Segundo Division of Douglas Aircraft did when confronted with the need to triple the capacity of a parts stockroom facility.

Today, instead of stocking parts on one level, they're using three. Movement of parts in and out of all three levels is quick, simple and

efficient. They're doing it with Standard conveyors.

This relatively simple solution to what could have been a difficult problem is one example of how Standard Conveyors pay off in every industry. STANDARD CONVEYOR COMPANY, North St. Paul 9, Minnesota. Sales and Service in Principal Cities.



Third level is reached via portable Handibelt conveyor from reversible live roller conveyor. Patented easy-adjustment features of Handibelt permit quick reversing of flow.



For details on Standard Conveyors, help in selecting the right type and size to meet your needs, contact the Standard representative listed in your classified phone book or write direct. Ask for Bulletin Y-8.



(Concluded from Page 83)

ventories of hot-rolled bars and shapes, cold-finished bars, structurals, plates, galvanized and stainless steel, aluminum, and other specialty items.



NEW OFFICES

Aluminum Co. of America, Pittsburgh, opened a sales office at 1001 Franklin Ave., Garden City, N. Y. William B. Renner is manager.

Raytheon Mfg. Co. moved the administrative and sales offices of its Semiconductor Div. to Needham (Mass.) Industrial Park, off Route 128. Production facilities remain in Newton, Mass. The division manager is H. J. Finison.

Thompson Products Inc., Cleveland, opened an office in the National Grange Bldg., Lafayette Square, Washington, D. C. Frank A. Flower is manager; Arthur R. Christie, senior consultant.



ASSOCIATIONS

National Fluid Power Association, Evanston, Ill., elected these officers: President, J. A. Marsh, Rivett Lathe & Grinder Inc., Boston; first vice president, L. L. Charlson, CharLynn Co., Minneapolis; second vice president, Frank Flick, Flick-Reedy Corp., Melrose Park, Ill.

Steel Door Institute, Cleveland, elected Nat L. Lehman board chairman. Mr. Lehman is vice president-sales promotion for Steelcraft Mfg. Co., Cincinnati.

British Investment Casters' Technical Association has been established at 5 E. Bank Rd., Sheffield 2, England. J. Bolton is secretary.

George H. Peckover, Peckover's Ltd., Toronto, Ont., has been named president of the recently formed Canadian Steel Warehouse Association, 11 Adelaide St. W., that city. Other officers, all of Toronto, are: Vice presidents, Archie Russel of Hugh Russel & Sons Ltd. and Ernie Samuel of Samuel, Son & Co. Ltd.; treasurer, Paul Davidson, Rosco

Metal & Roofing Products Ltd.; and secretary, Robert Baines, Baines & David Ltd.

F. Stan Romanse, Babcock & Wilcox Co., New York, was elected president of the Purchasing Agents Association of New York Inc.



CONSOLIDATIONS

National Tool Co., Cleveland, manufacturer of special cutting tools, acquired Auto-Vac Co., Bridgeport, Conn., producer of automatic machines for vacuum forming plastics. E. Bowman Stratton Jr. has been named vice president of National Tool in charge of the Auto-Vac Div.

Wheelabrator Corp., Mishawaka, Ind., acquired Crandall Engineering & Mfg. Inc., Vicksburg, Mich., producer of barrel finishing machines. J. A. Schmidt Jr. will be general manager of the new division; G. H. Lieser, wet blast product manager; and Roy T. Romine, barrel finishing product manager and chief engineer.

H & B American Machine Co. Inc., Chicago, acquired control of General Trading Co. and its 42 wholesale branches. General Trading is a distributor of automotive parts and accessories, industrial supplies, heavy hardware, and steel products.

Cleveland Pneumatic Industries Inc., Cleveland, acquired Claud S. Gordon Co., Richmond, Ill., manufacturer of supplies in the heat treat and heat measurement fields.

Houdaille Industries Inc., Buffalo, purchased Provincial Engineering Ltd., Niagara Falls, Ont., producer of overhead material handling and power transmission equipment, and erector of manufacturing plants.

J. I. Case International S. A., a subsidiary of J. I. Case Co., Racine, Wis., acquired the majority stock interest in Societe Francaise Vierzon, farm equipment manufacturer.

McGraw-Edison Co., Chicago, has offered to acquire National Electric Coil Co., Columbus, Ohio, fabrica-



There's a Satisfied Customer back of most orders for Diamond Perforated Metals

Naturally, we're always glad to make new friends and open up new accounts but, more and more as time goes on, the greater part of our business comes from concerns that have dealt with us before—some of them for nearly half a century.

One Reason is because they have learned that Diamond Perforated Metal Products are always reliable and our charges in line with competition of comparable quality. Another Reason is because our facilities are so complete, and our stock of dies so extensive, that almost any demand for perforated metal sheets, plates or parts can be taken care of promptly, accurately and economically.

ALL inquiries receive prompt attention. Illustrated catalogs give helpful working data—show many modern applications—enable you to select the best pattern for any purpose.

DIAMOND MANUFACTURING CO., WYOMING PENNA.

(Wilkes-Barre Area)

New Bulletin No. 47, describes DIAMONTEX Perforated Metal Lay-in Panels for Modern Acoustical Ceilings.



SAND BLAST the easy RUEMELIN way!

A practical Sand Blast Generator for all types of outdoor cleaning work. Removes rust scale, paint. Cleans bridges, removes laitence from cement. Cleans ready-mix trucks and highway equipment prior to re-painting. Equipped with remote control with deadman valve for stop and start at the nozzle! Wet type nozzles also available if desired. Portable units can be equipped with hi-speed mountings for highway trailing. Write for descriptive bulletin.

RUEMELIN MFG. CO.

MFRS. & ENGRS. • SAND BLAST & DUST COLLECTING EQUIPMENT
3882 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

New Diesel-Electric "Power.Package"

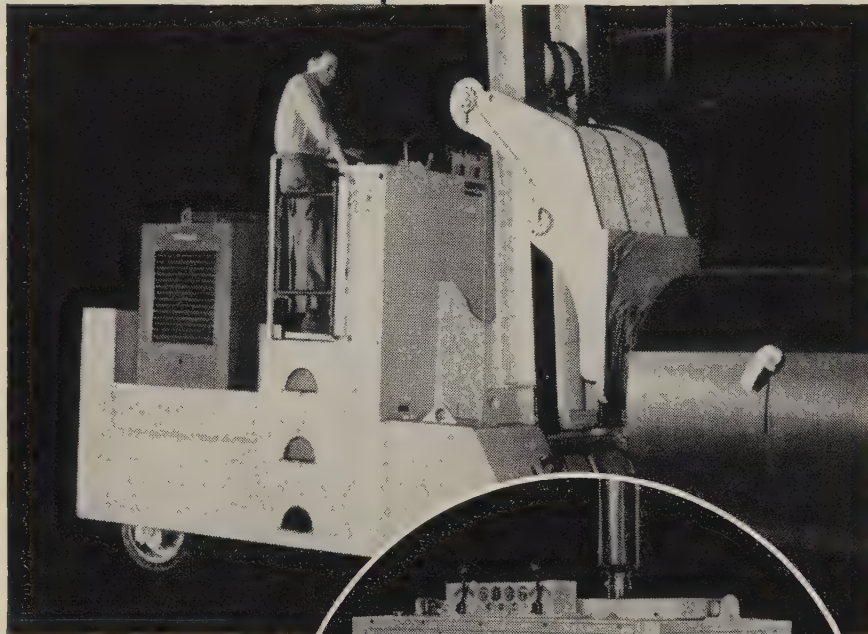
Does Both Jobs



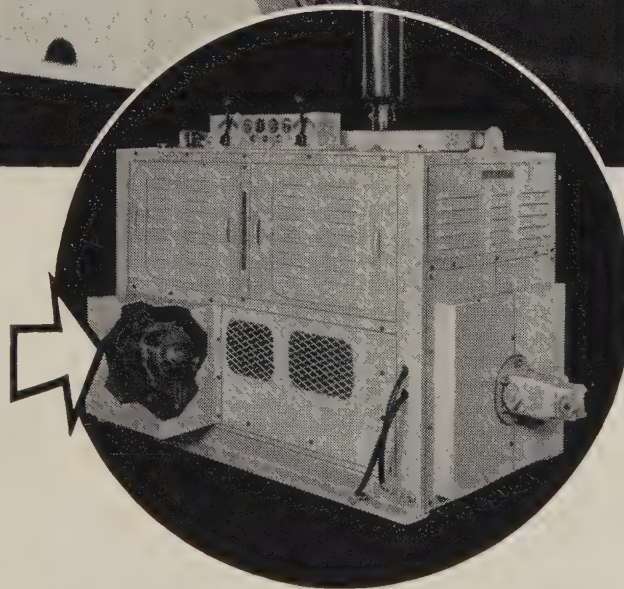
Economically

**1 GENERATES
TRUCK
MOTIVE POWER**

**2 DIRECT-DRIVES
HYDRAULIC
PUMP**



Ready-Power Model RD9DX Diesel-Electric Unit with "power package" equipment. Tractive power is supplied on demand by a specially designed generator with separate excitation which produces only the energy required to do the job.



Ready-Power makes diesel-electric power doubly effective with a newly developed "power package" designed specifically for use with its "RD" Series Power Units. This remarkable new concept allows the unit to operate at *constant speed*, no load to full load, yet supplies full range of tractive power on demand and produces continuous hydraulic power without need for intermediate electric motors. The last word in simplicity, this new "power package" eliminates contactor failure, minimizes maintenance, assures maximum operating economy for electric trucks up to 200,000 lb. capacities. Write for complete information.

READY-POWER

The READY-POWER Co., 3824 GRAND RIVER AVE., DETROIT 8, MICH.

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

tor of copper wire and insulating materials used in making electrical windings. The proposal is subject to approval by National Electric stockholders.



NEW ADDRESSES

Jones & Laughlin Steel Corp., Pittsburgh, moved its district sales office to 2131 S. Garfield Ave., Los Angeles 22, Calif. Its Stainless & Strip Div. is also quartered at that address.

American Railway Car Institute changed its address to 200 E. 42nd St., New York 17, N. Y.

U. S. Steel Export Co., a subsidiary of U. S. Steel Corp., moved its general offices to 100 Church St., New York.

Detroit Harvester Co. moved to its new office building and research center in Oak Park, Mich. The structure provides for executive offices and engineering facilities (housed separately in Detroit), as well as new testing and research laboratories.

Nonferrous Div., Frank Samuel & Co. Inc., moved to 500 Fifth Ave., New York 36, N. Y. The firm's ore and tin departments will remain at 24 State St., New York 4, N. Y.

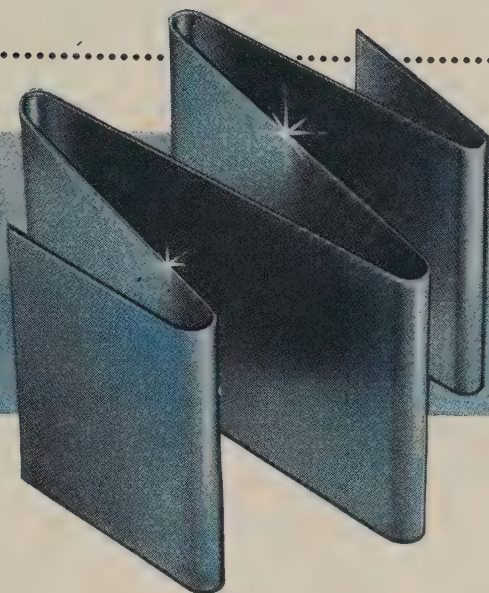
Rowe Machinery & Mfg. Co. moved into its new plant and offices at 811 Regal Row, Dallas, Tex. The firm makes coil handling equipment for the metal fabrication industry.

Long-Lok Corp. moved to 2601 Colorado Ave., Santa Monica, Calif. The firm makes self-locking, self-sealing bolts and screws.

International Selling Corp. and its subsidiary, International Steel Depot Inc., New York, moved into new branch offices and warehouse at 10220 Katy Rd., Houston, Tex. Stocks include imported steel, non-ferrous metals, chemicals, and plastics.

Wiedemann Machine Co. moved its plant to King of Prussia, Pa. The firm makes turret punch presses and

Sensational Blitzhacker gets its edge from



SHARON STAINLESS

Here's something new in food choppers. It cuts its way through more food faster than you can pronounce its name—*Blitzhacker*.

One of the more amazing things about the Blitzhacker is its blade, an accordion of Sharon Stainless Steel with a cutting edge *shaved* on. A special shaving process develops a durable edge that will stay sharp years on end without chipping.

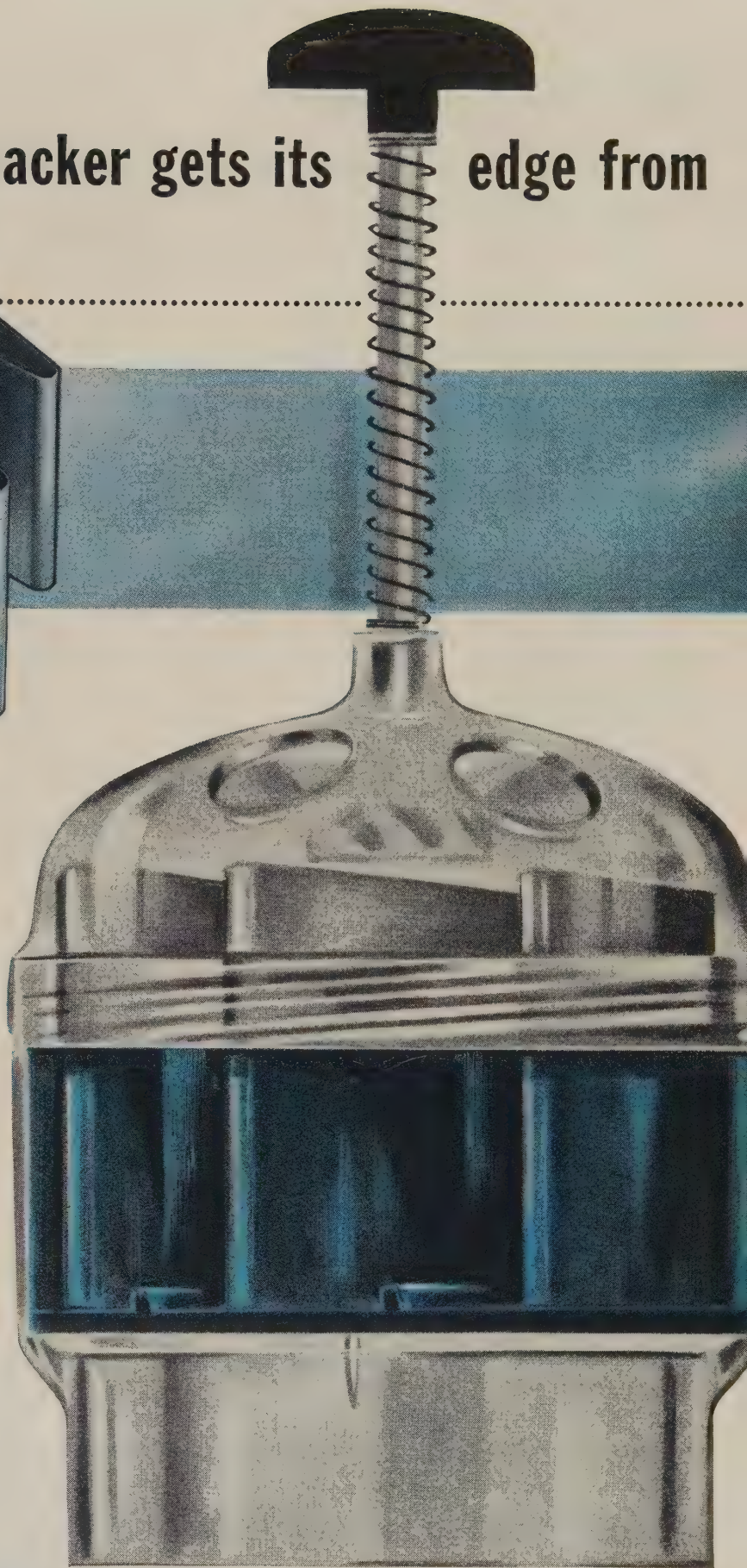
When you have a problem or an idea where Stainless Steel could be involved, call the Sharon office nearest you for service.

SHARONSTEEL

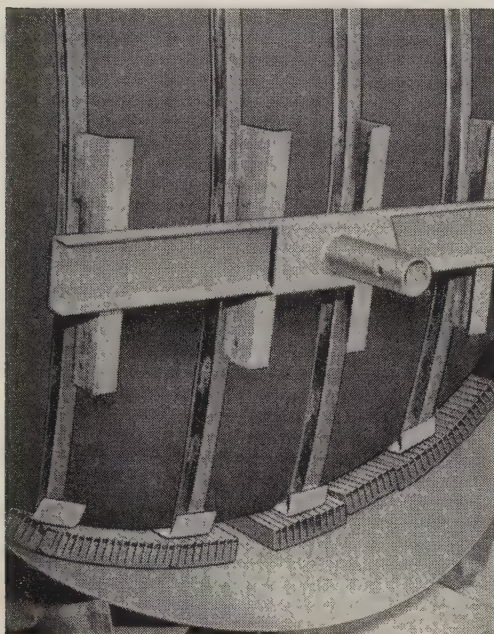
SHARON STEEL CORP.

SHARON, PENNSYLVANIA

CHICAGO • CINCINNATI • CLEVELAND • DAYTON • DETROIT • GRAND RAPIDS • INDIANAPOLIS • LOS ANGELES • MILWAUKEE
NEW YORK • PHILADELPHIA • ROCHESTER • SHARON • SEATTLE • SAN FRANCISCO • WASHINGTON, D. C. • TORONTO • MONTREAL



Rubatex provides "built-in" temperature control— sanitation—additional payload!



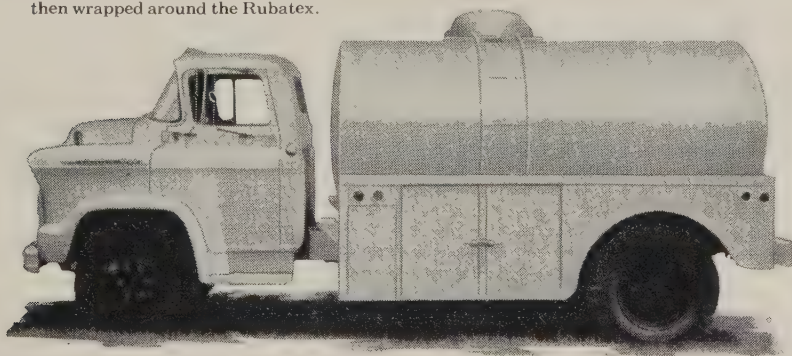
2" layer of Rubatex is applied between inner and outer shells of stainless steel milk tank. Rubatex is applied to inner shell with an adhesive between steel ring stiffeners used around inner tank. Thin layer of Rubatex also used over ring stiffeners—eliminating metal to metal contact. Outer shell is then wrapped around the Rubatex.

Rubatex answers need for careful temperature control in transporting milk as it has lowest heat conductivity (K Factor 0.21) of any known structural material and maintains its insulating efficiency indefinitely.

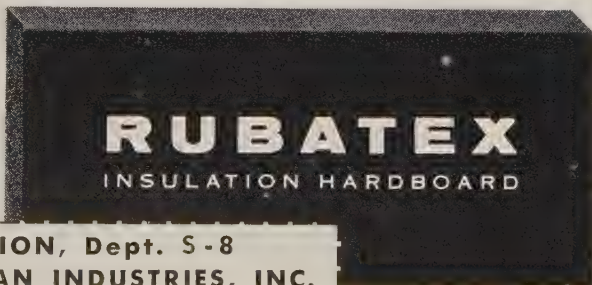
Rubatex's closed cellular structure also eliminates any possibility of bacterial growth between shells of tank—an important feature in handling liquid foods of any kind.

Last—but by no means least—Rubatex's light weight helps give Standard Steel Works one of the lightest farm pick-up tanks on road today—providing owner with an additional payload on his choice of truck.

In Standard Steel Works' own words: "After considerable investigation, we found Rubatex was the best low temperature insulation available anywhere."



Insulation efficiency, moisture and vermin proof qualities—plus extreme light weight—determined choice of Rubatex Insulation Hardboard as insulation for Standard Steel Works' 1700 gallon "Payload" farm bulk pick-up tank.



**RUBATEX DIVISION, Dept. S-8
GREAT AMERICAN INDUSTRIES, INC.
Bedford, Virginia**



For full details and sample of Rubatex Insulation Hardboard—print your name in space below, attach to your company letterhead and mail to us.

Name _____

**Send for
Free Sample
and
full details**

special machinery and offers heat treating services.

International Resistance Co., Philadelphia, moved its Chicago sales office to 5243 W. Diversey Ave.



Topp Mfg. Co., a division of Topp Industries Inc., Los Angeles, opened Plant No. 5 at 10200 Aviation Blvd., that city. Plant floor space of the company has been doubled by the acquisition of this facility which houses the Communications Div. Peter H. Stanton, vice president, is in charge of the division.

KW-Dart Truck Co. is erecting a 112,000 sq ft building in Kansas City, Mo., to house general offices and manufacturing departments. Cost of the facility and its equipment: More than \$1 million.

Reynolds Metals Co., Richmond, Va., will build an office and steel service center building on Fern Valley Road, Louisville. It will be operated as a branch by its subsidiary, Reynolds Aluminum Supply Co.

Westinghouse Electric Corp., Pittsburgh, is building a plant at Baldwin, Fla. It will be operated by the Mfg. & Repair Div.

Page-Hersey Tubes Ltd., Toronto, Ont., opened a steel service center in Montreal, Que. A similar facility was opened earlier on the Annacis Industrial Estate near Vancouver, B. C.

Owatonna Tool Co., Owatonna, Minn., opened a steel service center at 1923 Indiana Ave., Chicago 16, Ill.

Columbia - Southern Chemical Corp., Pittsburgh, is constructing a cement plant at Barborton, Ohio. Annual capacity: 1.5 million bbl.

Airfloor Co. of California Inc., Norwalk, Calif., is establishing a metal stamping affiliate (Airflow Co. of P. R. Inc.) in San Juan, P. R. The plant will market its hollow steel forms (for use in construction) in the U. S. as well as in Puerto Rico.

Technical Outlook

ORE SEPARATION—Dings Magnetic Separator Co., Milwaukee, will try an electrostatic device called a Coronatron for beneficiation of nonmagnetic taconite ore. It has been used successfully in other mineral concentration efforts.

ALUMINUM IN YOUR FUTURE—

Imaginative manufacturers are developing more uses for the metal. Some of the newest ones: Protective coatings for mothballing U. S. Navy vessels that have wooden decks; hot water heater shells; an electrically heated charcoal and fireplace log igniter; lunch buckets; boat trailers; and a mid-get automobile for the golf course, farm, or beach. For the weekend boating enthusiast, there's a portable pier kit that is easy to install or remove.

WHERE WEIGHT SAVING PAYS— New armored vehicles designed for air transport make extensive use of aluminum alloy 5083 in thick plate sections, the powerplant, and a number of components. Three preproduction models are being built for the Army by Food Machinery & Chemical Corp., San Jose, Calif.

TUBES FOR CORROSIVE USE—Porcelain enameling has solved another corrosion problem. Enameled parts used for air preheater tubes have been in service five years and are in good condition, reports an eastern electric power producer. The corrosive action of sulfur compounds destroys regular tubes in two years.

DOUBLE INSURANCE—Each of the 48 air valves in the new seamless tube mill at the Indiana Harbor Works of Youngstown Sheet & Tube Co. has a standby double. If something goes wrong, it's ready for immediate substitution to cut maintenance downtime.

ALLOY HELPS FRESHEN WATER—

Hastelloy C is a key material in a new ion transfer process for making brackish water drinkable. It's used as the cathode sheet material in electric membrane demineralizers that can be built to produce from 720 to several million gallons of fresh water

a day. Alloy C is used because it withstands attack from the acids and salts in the undrinkable water. The demineralizers were developed by Ionics Inc., Cambridge, Mass.

CLADDING PROTECTS WIRE—Operating temperatures of electrical apparatus can be increased by using a copper wire clad with chrome-iron alloy, says Sylvania Electric Products Inc., New York. The wire is made by inserting a copper rod into the alloy tube and forming a physical bond by cold drawing and annealing. Biggest application: Resistance furnaces that operate under corrosive and oxidizing conditions.

READING DATA FASTER—A tape reader that operates at 1000 characters a second will speed data processing in computer systems. It is made by Burroughs Corp., Pasadena, Calif. Reels hold tapes of 350 or 700 ft, containing 40,000 to 80,000 characters.

NEW TUMBLING MEDIUM—A sintered abrasive medium is impregnated with auxiliary cutting, polishing, or finishing compounds to improve cutting action. Three of 11 types announced by Dixon Sintaloy Inc., Stamford, Conn., have "file-type" cutting edges on all surfaces.

WEAR HISTORY—Plastic replicas are being used at Battelle Memorial Institute to study wear in places such as cylinder walls where direct observation is difficult. The technique is similar to that used for observation under the electron microscope. A sheet of cellulose acetate dipped in dioxane is pressed against the wearing surface to make the replica. Gold is evaporated on the plastic, after which it is observed under a light microscope. A full wear history can be preserved this way.

HEAVY HEADING—The 1¼-in. Boltmaker at Cleveland Cap Screw Co., Cleveland, is cold heading 4-lb precision cap screws at the rate of 40 a minute. The machine can handle specials in an equally husky size.

Flexibility Pays Off on Short Lots



Automatic indexing on a modified standard machine turns out complex internal shapes at a profit. It's this company's example of how you can boost operating efficiency and trim expenses through aggressive patrolling of production costs. The article is one of the top entries in the Cost Crisis Competition. Watch for another next week

LOW PRODUCTION can be a major deterrent to cost cutting. The best tooling or method for turning out a part often is impractical because limited numbers of similar parts can't return the required investment.

A case in point: The manufacture of special service and maintenance tools and equipment. At B. K. Sweeney Mfg. Co., Denver, such tools are produced for the aircraft, railroad, and trucking industries.

Douglas Williams, tool engineer, explains it this way: In all but a few cases, the tools are made in small quantities, sometimes as few as ten similar units to a lot.

The Problem—The most important cost barrier is in producing the internal splines, squares, and hexagonal shapes. The operation was slow and costly.

The relatively high initial cost of

broaches precluded their use on so few parts. And many of the internal shapes must be cut to shoulders, or into blind holes. Through broaching is impossible.

The job used to be done on a Fellows gear shaper, using indexing heads, and indexing fixtures when possible. Hand indexing was used on others. In all cases, the operator had to work at the machine all the time. Accuracy was a constant problem, since indexing errors were tough to prevent.

The Solution — New, versatile equipment (a modified Fellows gear shaper with automatic indexing) handles the jobs. Unit costs have been reduced more than 50 per cent in most cases.

The tooling for the job is simplified; tool costs are down; and the operator is needed only to load and unload the machine.

Saved: 66%

Saved: 64%

Saved: 59%

These typical internal shapes are machined at an average savings of 63%

1. DOUBLE SQUARE

3/4 in. across flats-cut to a relief groove

Production Quantity 100 parts
Old method unit costs \$0.549
New method unit costs \$0.188

2. ANCHOR PLATE

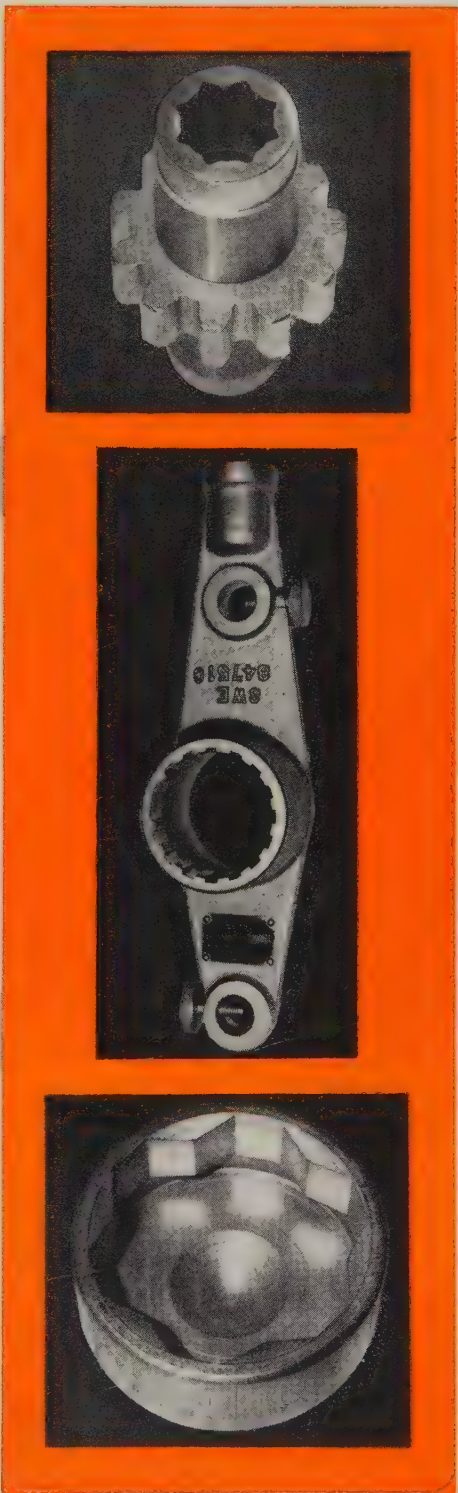
16 straight side splines, 3 1/8 in. major diameter

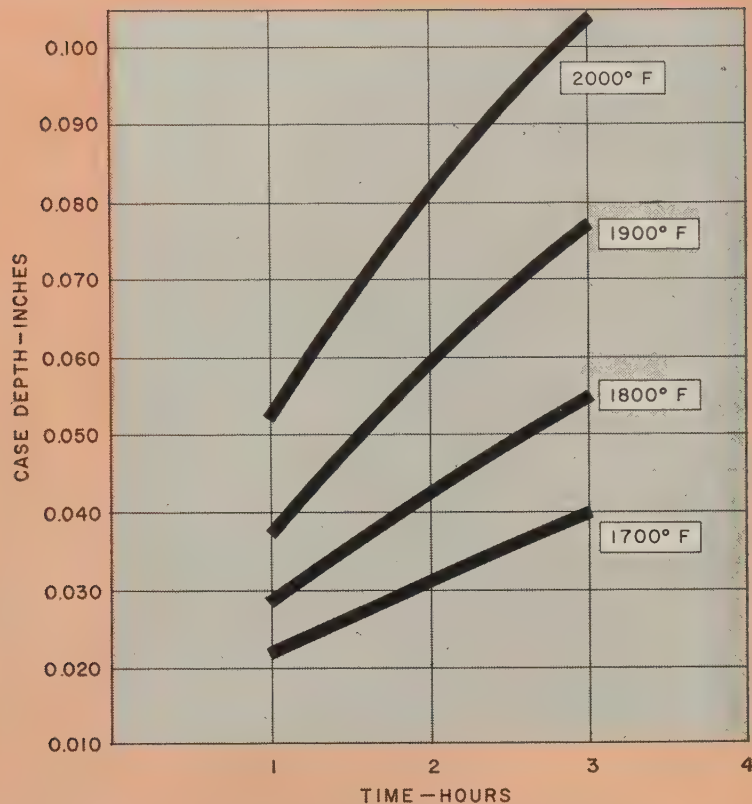
Production Quantity 75 parts
Old method unit costs \$1.498
New method unit costs \$0.541

3. HEXAGONAL SOCKET

2 1/4 in. across flats-cut to a relief groove

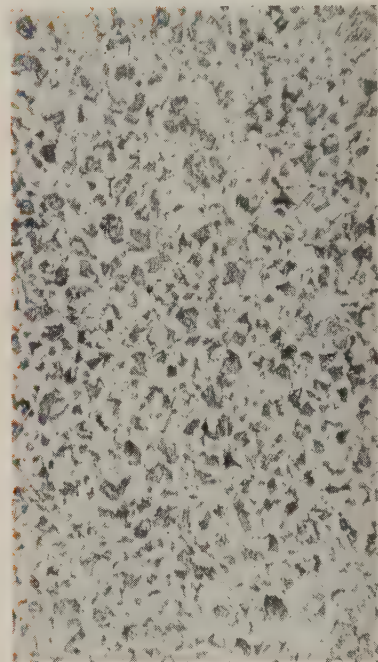
Production Quantity 20 parts
Old method unit costs \$0.738
New method unit costs \$0.303





Total case depths on 8620 steel for time at temperature

Picture of Core



8620 steel before high temperature carburizing.

High Temperature Carburizing

Where you can use it, the process will increase production and decrease costs. Many of our carburizing steels are suitable for treatment at higher temperatures

STEP UP your furnace temperature to 1900° F and you may be able to cut carburizing time in half. Go to 2000° F, and you can chop it still more.

Those are conclusions drawn from an investigation into high temperature carburizing at Ipsen Industries Inc., Rockford, Ill. Satisfactory grain size can be maintained when processing the higher nickel alloy steels, such as 4615 and 9315. Alloys such as 8620 may require re-

finement in a reheat operation.

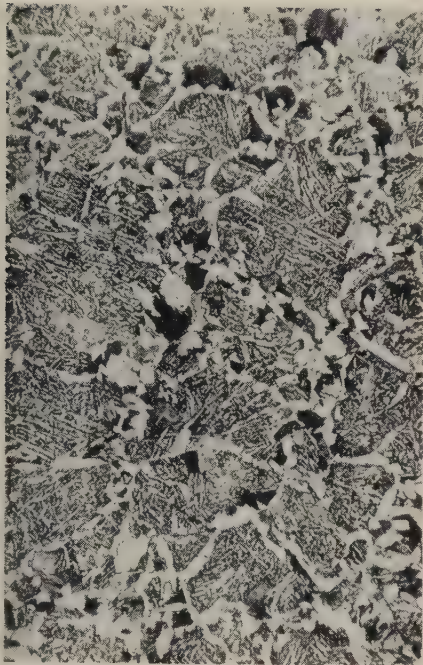
H. N. Ipsen, president of the company, feels that while general acceptance of gas carburizing at the higher temperatures is unlikely (because dimensional limits and physical requirements of a part may be too critical), it will prove adaptable in many cases. "The savings in production costs and time in those cases will certainly warrant the required preliminary investigation," avows Mr. Ipsen.

Requires Closer Control—Atmosphere potential becomes more critical at elevated temperature and creates a need for automatic dew point control at the furnace as well as at the generator.

Temperature uniformity is also more critical at the higher levels because accelerated carbon penetration exaggerates discrepancies of temperature differences in the equipment.

To Begin the Job—Two needs must be met before high temperature carburizing can be done. 1. Commercially available standard steels which are "adequate." Their analysis must make them suitable

through Carburizing and Reheat



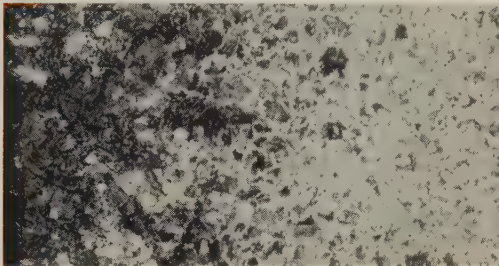
8620 steel carburized 3 hours at 2000° F and atmosphere cooled



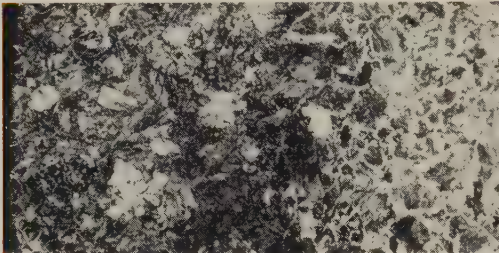
8620 steel carburized 3 hours at 2000° F, cooled, reheated to 500° F, and oil quenched

High Temperatures Increase Penetration of Carbon

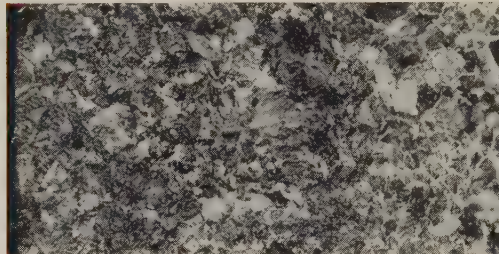
All photos: X75—2 per cent Nital etch



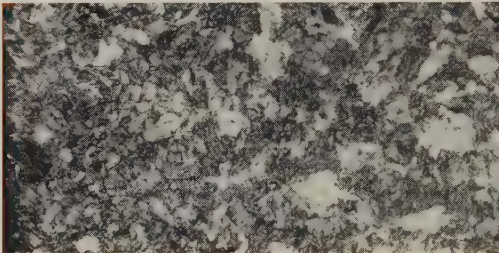
1117 steel carburized 2 hours at 1700° F and atmosphere cooled.



1117 steel carburized 2 hours at 1800° F and atmosphere cooled



1117 steel carburized 2 hours at 1900° F and atmosphere cooled



1117 steel carburized 2 hours at 2000° F and atmosphere cooled.

Is Practical

for carburizing at the higher temperatures without excessive grain growth. 2. Practical gas carburizing furnaces that can operate at elevated temperatures and under exaggerated conditions of enriched endothermic atmospheres. Steel suppliers believe many of our present carburizing steels are suitable for treatment at higher than normal temperatures. They say they can supply test control procedures to assure specific grain sizes. Producers also indicate that additional semistandard grades with inherent resistance to coarsening are in development.

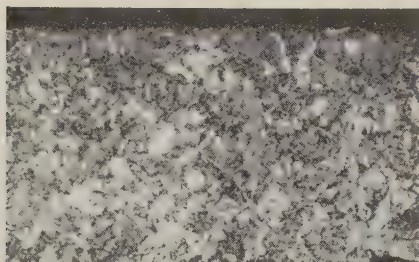
Furnaces Are Ready—Ipsen In-

How Temperature Affects Grain Growth

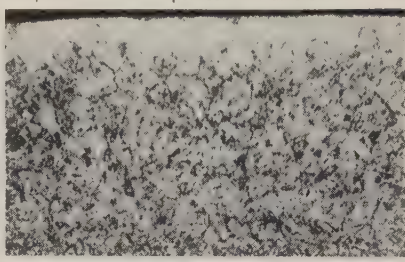
AISI No.	Before	1700° F	1800° F	1900° F	2000° F
1117 (1-	8	6-7	6-7	4-6 duplex	3-5 duplex
4615 hour	8	8	8	8	7-8
8620 cycle)	8	7	7	4-7 duplex	4-6 duplex
9315	8	8	8	8	8
1117 (3-		5-7	4-7 duplex	4-6 duplex	3-6 duplex
4615 hour		8	8	8	6-7
8620 cycle)		7	7	3-7	3-6 duplex
9315		8	8	8	8

Reheat and Oil Quench Refine Grain Size

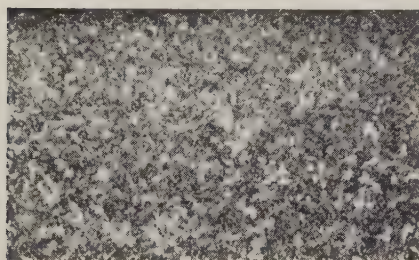
All photos: X100—2 per cent Nital etch



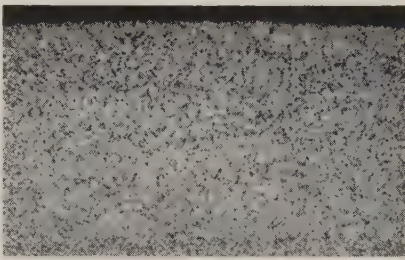
1117 steel carburized 3 hours at 1900° F and atmosphere cooled.



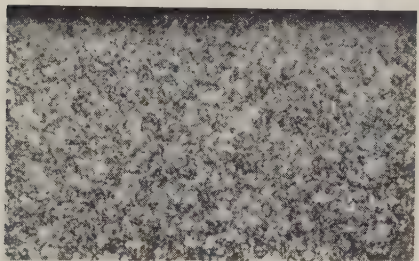
1117 steel carburized 3 hours at 1900° F, atmosphere cooled, reheated to 1500° F, and oil quenched



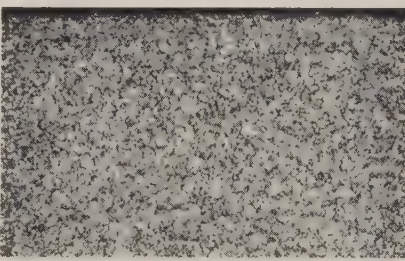
4615 steel carburized 3 hours at 1900° F and atmosphere cooled



4615 steel carburized 3 hours at 1900° F, atmosphere cooled, reheated to 1500° F, and oil quenched.



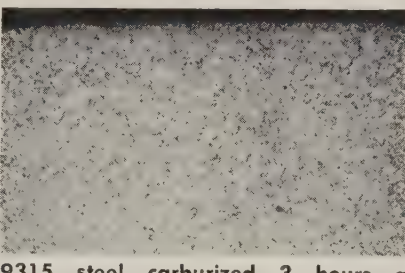
8620 steel carburized 3 hours at 1900° F and atmosphere cooled



8620 steel carburized 3 hours at 1900° F, atmosphere cooled, reheated to 1500° F, and oil quenched



9315 steel carburized 3 hours at 1900° F and atmosphere cooled



9315 steel carburized 3 hours at 1900° F, atmosphere cooled, reheated to 1500° F, and oil quenched

dustries has long supplied furnaces suitable for hardening and brazing up to 2100° F. Now, the same type furnace is available in larger sizes and can be used for high temperature gas carburizing without major change.

Failure-prone alloy parts have been replaced with high density refractory materials. They include such components as hearth and hearth support members, radiant heat transfer tubes, conveyor rollers, directional flow baffles, and high speed forced circulation fans.

Four Steels Tested—Ipsen selected 2000° F as the maximum furnace temperature for its investigation, with duplicate tests at 1700, 1800, and 1900° F for comparison. Holding times for each temperature were set at 1, 2, and 3 hours, followed by atmosphere cooling. The quench reactions following reheating were studied in later investigations.

Tests were made on four commercial grades of steel: AISI 1117, a carbon grade; 4615, a nickel-moly steel; and the nickel-chrome-moly grades 8620 and 9315.

A standard, gas fired Ipsen Model TC-1-150-G furnace was used with enriched endothermic atmosphere in the heating and cooling chambers. Forced convection heating of parts was done by a newly developed ceramic fan. A standard, controlled dew point type of endothermic generator provided the atmosphere.

Procedure for Tests — Test bars were cut to length and rough ground to remove possible surface decarburization. The four grades of steel were loaded in the furnace, interspersed among new bars of C1018 steel. Twelve loads were prepared in baskets to approximate an individual gross weight of 35 lb.

Automatic air-gas ratio control at the generator provided dew points of 35° F for 1700° F furnace operation, 25° F for 1800° F, 20° F for 1900° F, 15° F for 2000° F. Adding of raw natural gas to get the lower dew points required for high temperature operation was held to a minimum and controlled through an Ipsen Dewtronik. Atmosphere usage was 200 cfh, that of raw gas additive 5 to 15 cfh.

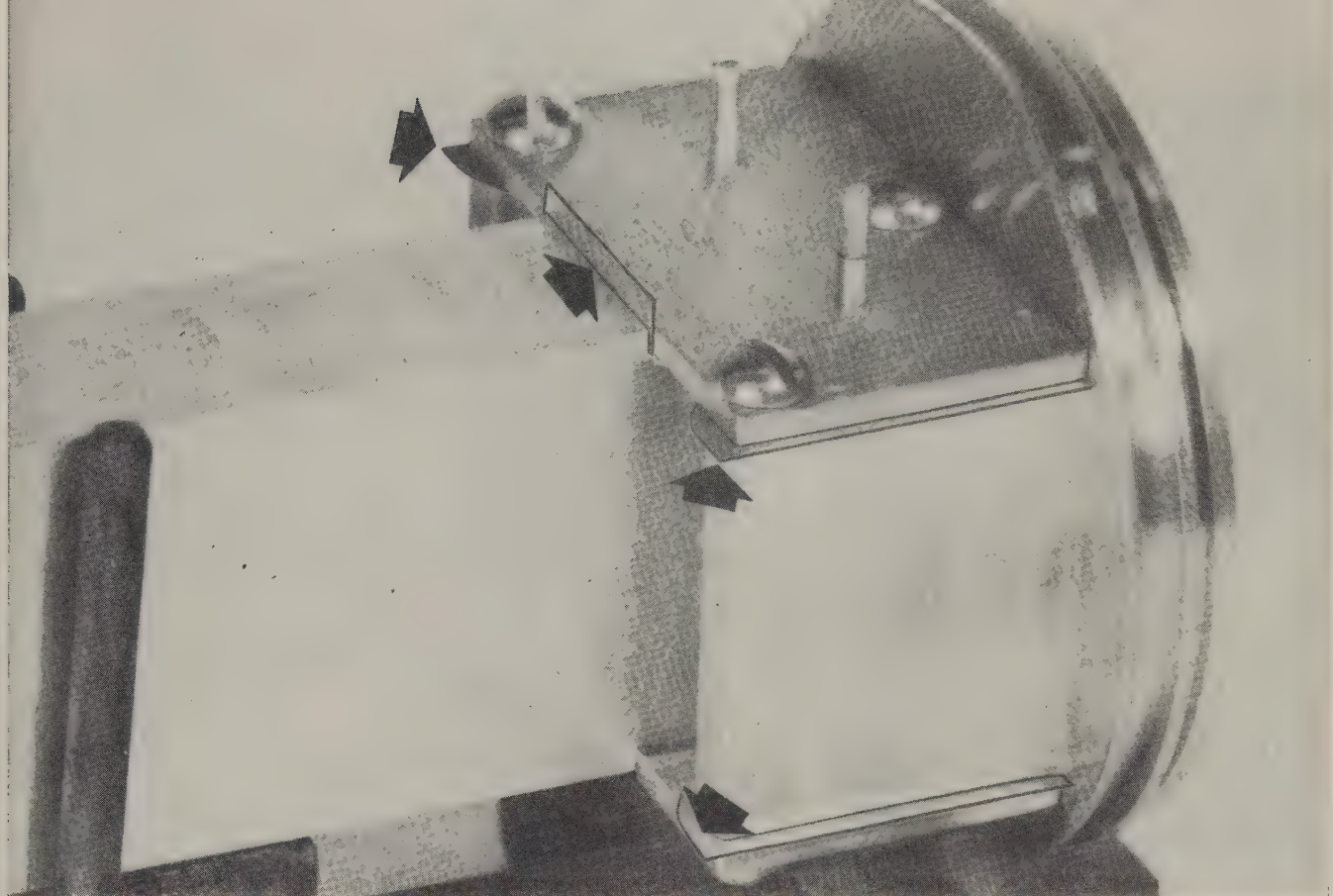
Dew points were checked by the Dewtronik, Alnor, and Visual CO₂ Cup tests. They were interpolated from published curves to conform to a potential of 0.90-1.00 per cent carbon at the four temperatures.

Recording Results — After treatment, parts were measured to check dimensional growth, and microspecimens were prepared to determine average total case depth, based on different locations on each sample. (Total case was considered to be that depth at which carbon in case and core were the same.)

The investigation of dimensional growth indicated no change or trend relative to type of material or processing. Grain growth was determined in accordance with ASTM E-19. The results are shown in the table on Page 99.

The 1 and 3 hour cycle samples were reheated in an Ipsen T-4-600B-GM furnace and held at 1500° F for 1 hour in a controlled atmosphere with 30° F dew point. Samples were quenched in 150° F oil.

The photomicrographs on these pages show results of carburizing at the four temperature levels and after reheating. On certain steels, reheating and quenching produced considerable grain refinements.



The inside of this wave guide has to be exceptionally accurate. Arrows show some of the filler metal strips before assembly is immersed in flux bath. Fixture insures alignment

Magnesium Dip Brazed Accurately

Joining such parts with other methods can produce much distortion, increasing finish machining. This procedure minimizes such changes, improves quality

DIP BRAZING is a valuable production tool for joining magnesium, says Dalmo Victor Co., Belmont, Calif.

The firm uses the process on precision wave guides for radar systems. Results: Lap joints hold 14,000 psi; pressure tests at 35 psi show that less than 0.25 per cent leak; an x-ray shows almost no porosity or voids; the method does not distort the part as much as welding does.

How It's Done—Parts have to be deburred to produce a successful braze. The company finds that the M1A and AZ31B (FSI) work best with AZ 125 filler metal and Dow

Chemical's 452 brazing flux.

Parts are degreased, then lightly sanded with an aloxite cloth or put into an electrolytic dip. A hot water rinse and drying follow.

Filler metal shims and wires are inserted during assembly. (You can form or stamp AZ 125 even though it's a little brittle.) Use a brazing fixture, and be sure to allow 0.004 to 0.006 in. clearance so filler metal can flow properly. Try staking, self-positioning, spring loading, or tackwelding to hold parts during dipping.

Preparation Important—Preheat the parts to evaporate moisture and cut heat loss in the flux bath. (The

company uses an oven set at 850° F.)

After preheat, parts are immersed in the flux bath, then removed and cooled to 600° F. A hot water rinse is used to remove frozen flux. A 1-minute dip in Dow No. 1 is followed by a 5 per cent sodium dichromate solution. Finish machining and protective coatings complete the process.

Four Suggestions—Keep fixtures small. Heavy ones reduce the bath temperature and increase dragout.

Be sure fixtures drain well. Trapped flux in blind holes and crevices is a serious problem—you need a free flow of water for rinsing.

Make fixtures of stainless or high chrome steel. A number of salt baths are highly corrosive.

Allow for differences in expansion rates of steel and magnesium.



Operator turns off the vibrating section of the assembly line

Vibrator Aids Testing

Shaking condenser units for 1 minute weakens faulty soldered joints. They are easily located in a pressure test. Vibrating station is an integral part of the assembly line

AIR CONDITIONER manufacturers have been plagued with faulty connections: Soldering flaws strong enough to stand up under a 400-psi test loosen under the jolts of shipping. They show up after the units are installed.

A midwestern manufacturer has the answer: Put the units over the bumps on a vibrating roller conveyor. The section precedes the pressure test booth.

One-Minute Test—Each unit is stopped on the vibrating section for 1 minute of violent shaking. It's

enough to shake loose any faulty connections, which then show up in the pressure test.

The section has a standard roller conveyor top and base. The roller top is supported by four stiff coil springs that amplify the vibration and prevent its transmission to the floor.

A vibrator, made by Cleveland Vibrator Co., Cleveland, is bolted to the longitudinal structure of the conveyor top. The unit, which operates on 80 psi of air pressure, delivers 1000 blows a minute.

Faster Checker Cleaning

The secret to efficient cleaning of blast furnace and open hearth checkers is making an opening in the checkers in a short time and using rugged equipment that is easy to handle. One compact unit is made by Thomas C. Wilson Inc., Long Island City, N. Y. It has an air driven motor with forged, carbide-tipped cutter bits.

The diameter of the motor is less than the square size of the checkers, giving the bits enough play to drill into corners rapidly. When the cleaner is fed downward, dislodged debris falls clear.

The unit cleans with a battering and oscillating action. It is retracted while still running. In its upward travel, it tends to break additional deposits.

Cleaning Large Checkers — In open hearths, the opening made is large enough for use of larger bits, mechanical cutter heads, or chain heads. If a thorough cleanup into the corners is required, it is handled by rodding manually or with pneumatic drills.

The equipment opens solidly plugged square checkers at a rate of 3 to 4 ft every 5 minutes. In one case, only 6 minutes were required to make an enlarged opening in several 9 in. square checkers that were plugged from 4 to 8 ft of their depth.

Heated Dies Keep Accuracy

Stretch dies weighing 4000 lb are heat treated without distortion or decarburization at National Heat Treating Co. Inc., Inglewood, Calif.

The company heat treats tools for North American Aviation Inc., Los Angeles. After treatment, the high speed steel dies are accurate to ± 0.0005 in.

Process—A die is placed in a sand-sealed retort containing a hydrocarbon compound which emits protective gas when heated above 1400° F. It prevents decarburization.

The retort is preheated to 1600° F for 2 hours to activate the compound. Then it is held at 2200° F for 1 hour to assure maximum tool strength.

Distortion is prevented by removing the retort from the furnace and cooling it in open air. The parts have a Rockwell C hardness of 60 to 62. They can be nitrided.



Cold Rolling Puts a Tougher Face ... on an "Old Salt"

To increase fatigue resistance, endurance limit and to fight the corrosive action of the sea, Erie Forge & Steel technicians cold roll ship's tail shafts as illustrated above. The life of the forged steel tail shaft is prolonged by cold rolling under the propeller and the after bearing. The surface toughness thus effected reduces fretting corrosion, minimizes pitting, costly failures and the hazard of propeller loss at sea.

Cold rolling is applied not only to new shafting but also for reconditioning existing ship's shafts, thus saving sizeable replacement costs in many instances.

Designed and built by Erie Forge & Steel engineers,

the machine cold rolls shafts of any length and up to 30 inches in diameter. Any desired pressure up to 37,000 pounds can be exerted by the hardened steel rollers on each side of the shaft.

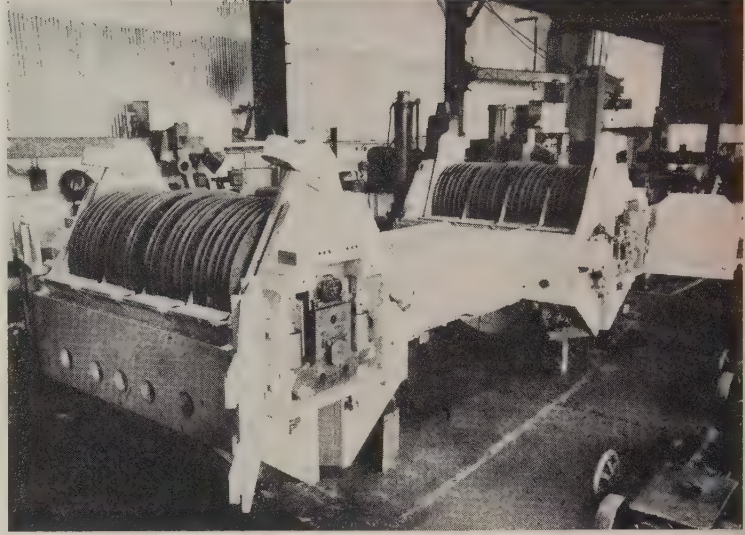
The Society of Naval Architects and Marine Engineers recommends that all ship's propeller shafts be cold rolled as a safety measure. This cold rolling process is approved by The Bureau of Ships, United States Navy.

Another of the special services characteristic of the continuing progress in steel improvement at Erie Forge & Steel. Let us work with you on your steel forging and casting requirements.

ERIE FORGE & STEEL CORPORATION

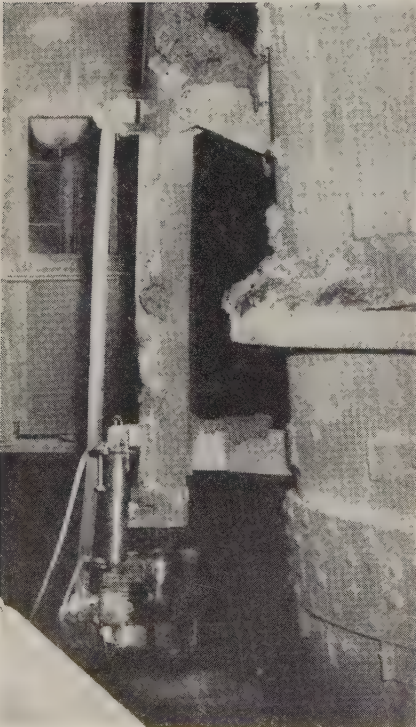
ERIE, PENNSYLVANIA

MEMBER AMERICAN IRON AND STEEL INSTITUTE



Instrumentation for controlling the weight of metal dispensed is in the crane cab and on the double hook spreader beam. Load cells (right) on the spreader beam are protected by a sturdy case

Automatic Pouring Ups Yield



A hydraulic cylinder on the stopper replaces the manual lever. It operates by pushbutton or automatic control

Strain gages are used to measure the exact weight of metal poured into ingot molds. They are accurate to 1 part in 8000. Hydraulic-electric device closes the stopper

AUTOMATIC POURING control designed by Republic Steel Corp., Cleveland, assures uniform ingot weights and eliminates the hazards of manual teeming.

When ingots are poured manually, weights often vary plus or minus 8 per cent. Insufficient metal results in the loss of part of one bloom, billet, or slab; overweight ingots require excessive cropping.

The new method (called Ingot-control) controls ingot weight to nearly 1 per cent. Metal has to be dispensed to an accuracy of 100 lb. This demands exactness of 1 part in 8000 (the total load is 800,000 lb).

Using the System—The control has three elements: A weighing device to sense the quantity of metal

dispensed; a hydraulic unit to replace the manual lever of the ladle stopper; and a control unit to correlate the two with requirements.

Operation is simple. The crane operator moves the ladle near the crane cab and makes an electrical connection to the hook spreader beam that houses the weighing devices (load cells). The hydraulic pouring device is attached at the pouring platform.

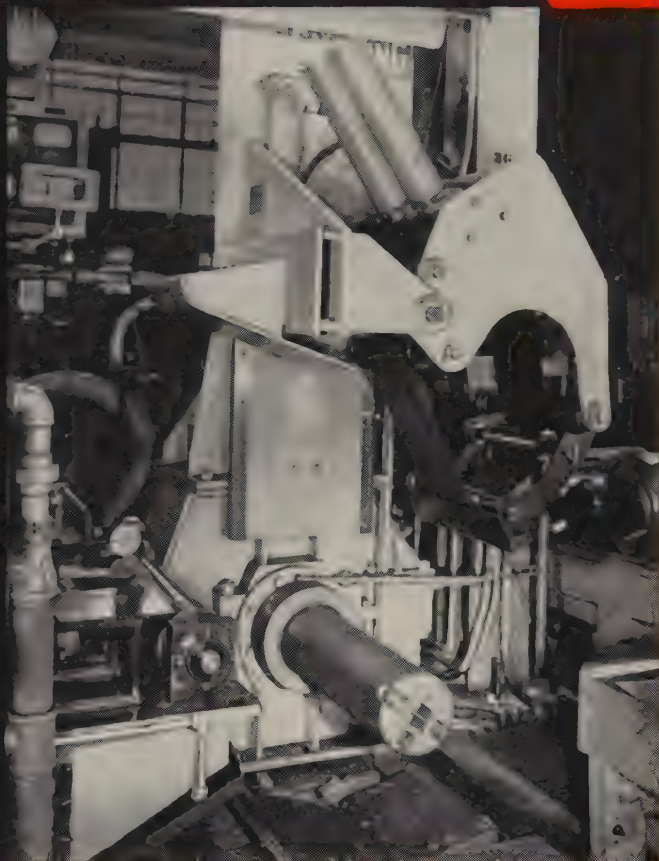
To start pouring, the operator presses the open button on the control box, the stopper rod in the ladle rises; and molten steel flows into the ingot mold. The weighing circuit measures the amount of metal dispensed and warns of approaching full weight by sounding a

Auxiliary Equipment by Pittsburgh

4 HIGH COLD ROLLING MILL



Mandrel Type Payoff Reel



Tension Reel and Belt Wrapper

The auxiliary equipment illustrated above is representative of numerous installations designed and built by Pittsburgh in many leading metal fabricating plants. Consult us for your ferrous or non-ferrous mill equipment requirements—from major mill construction to small auxiliary jobs.

"Electric and open hearth steel castings from 1 lb. to 100 tons"



Pittsburgh
ENGINEERING
& MACHINE

Division of Pittsburgh Steel Foundry Corporation

P. O. BOX 986, PITTSBURGH 30, PENNSYLVANIA
PLANT AT GLASSPORT, PENNSYLVANIA

horn. The operator lowers the stopper and reduces the rate of flow. When the correct weight is reached, the scale closes the stopper.

How It Works—The heart of the system is the weighing device: A load cell that is attached to the double hook spreader beam of the large ladles.

Deformation of the supporting structure under load is conveyed to a strain gage, causing a change in the electrical resistance of the gage wires. The change is measured to weigh the metal.

Moisture and heat also change the resistance of the gage. The hermetically sealed unit is enclosed in a sturdy case for mechanical protection. The effect of heat is compensated for through special circuitry.

Stopper Is Redesigned—The manual lever mechanism for opening the ladle was replaced with a hydraulic cylinder. The unit is commercially available. It is called Autopour. A solenoid control can be actuated by a remote pushbutton or tied into the weighing system.

Electric preset counters meter the metal as it is dispensed. When the required weight is reached, the counter automatically operates the solenoid valves.



Steel straps hold packages as workmen show . . .

How To Ship Long Rods

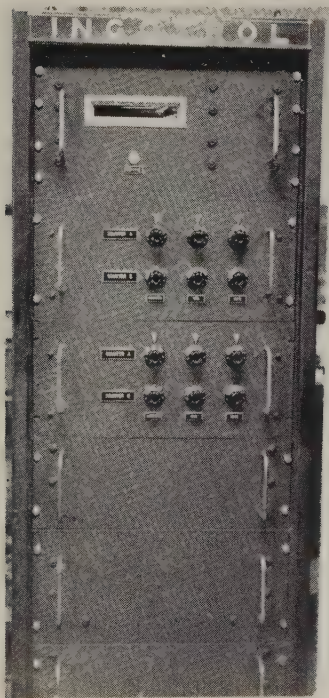
HERE'S a way to package rods that will cut handling time and reduce damage to threads or straightness during shipment. It's being used by Spang-Chalfant Div., National Supply Co., Ambridge, Pa., for sucker rods (25 to 30 ft long) which must meet rigid specs on straightness. (They're used by the oil industry.)

Low Cost Solution — Two elements (spacers and straps) are required to make packages of 40 to 80 rods. The spacers, oxiline treated wood blocks 28½ in. long with 15 or 20 grooves across both sides, separate and hold the rods. Five or

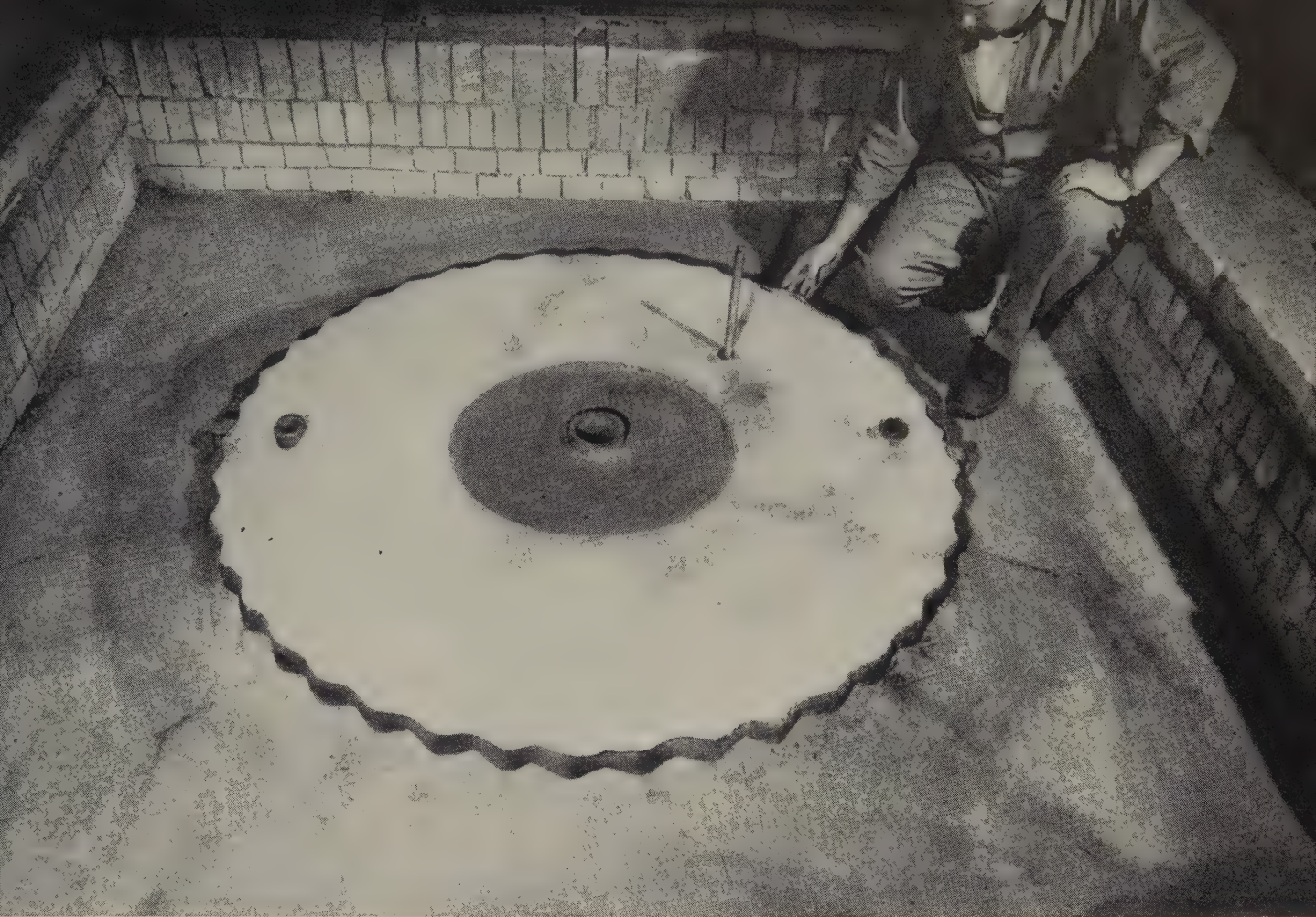
six sets are used at a spacing of 66½ in.

Top and bottom supports are 2 by 4 in. blocks, grooved along one side. The unit is held together by steel straps. Rods are 5/8 to 1 in. in diameter with upset ends for the threaded joint and a square section for gripping with a wrench. Four layers are held between five separators. The upset ends are staggered for compactness.

Two lifting rods and a set of wire rope slings are included with each package to aid overhead handling in the field. Gin pole trucks are commonly used.

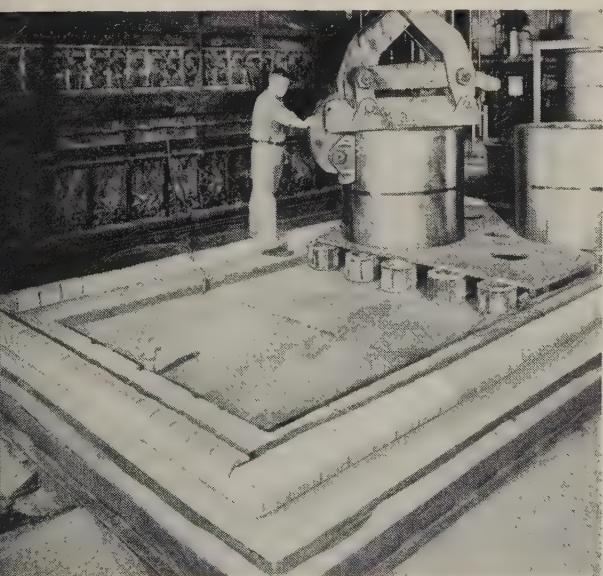


Counter dials on the Ingotrol are set for the weight of metal that should be dispensed



Four-stack strip annealing furnace with a capacity of three 30,000 lb coils on a 34 to 36 hr firing cycle, 68 to 78 hr cooling, operating at a strip temperature of 1320 F in a 8.2% CO atmosphere. The base, 9" thick hearth and portions of the curb are cast of B&W Kaocrete-A.

B&W Kaocrete-A resists CO disintegration and sand penetration at Granite City Steel

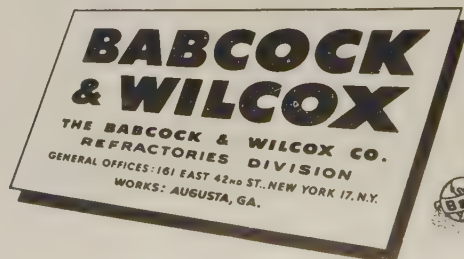


B&W Kaocrete-A is cast in the hearths and curbs of these furnaces where firebrick refractory was previously used.

Granite City Steel states that both bases have been in use for over three years without any disintegration resulting from the CO atmosphere. In addition, the monolithic structure of this B&W castable refractory eliminates the destructive effects produced by sand penetrating the joints and cracks of firebrick hearths.

For further information on B&W's specialized refractory castables, write for Bulletin R-35.

Strip annealing furnace with a capacity of 70 to 80 tons per charge on a 24 to 48 hr firing cycle, 48 to 96 hr cooling cycle, operating at a strip temperature of 1320 F in a 8.2% CO atmosphere. 4½" lining of B&W Kaocrete-A is used on hearth and curbs.



B&W REFRACTORIES PRODUCTS: B&W Allmul Firebrick
 B&W 80 Firebrick • B&W Junior Firebrick • B&W Insulating Firebrick
 B&W Refractory Castables, Plastics and Mortars
 B&W Silicon Carbide • B&W Ramming Mixes • B&W Kaowool

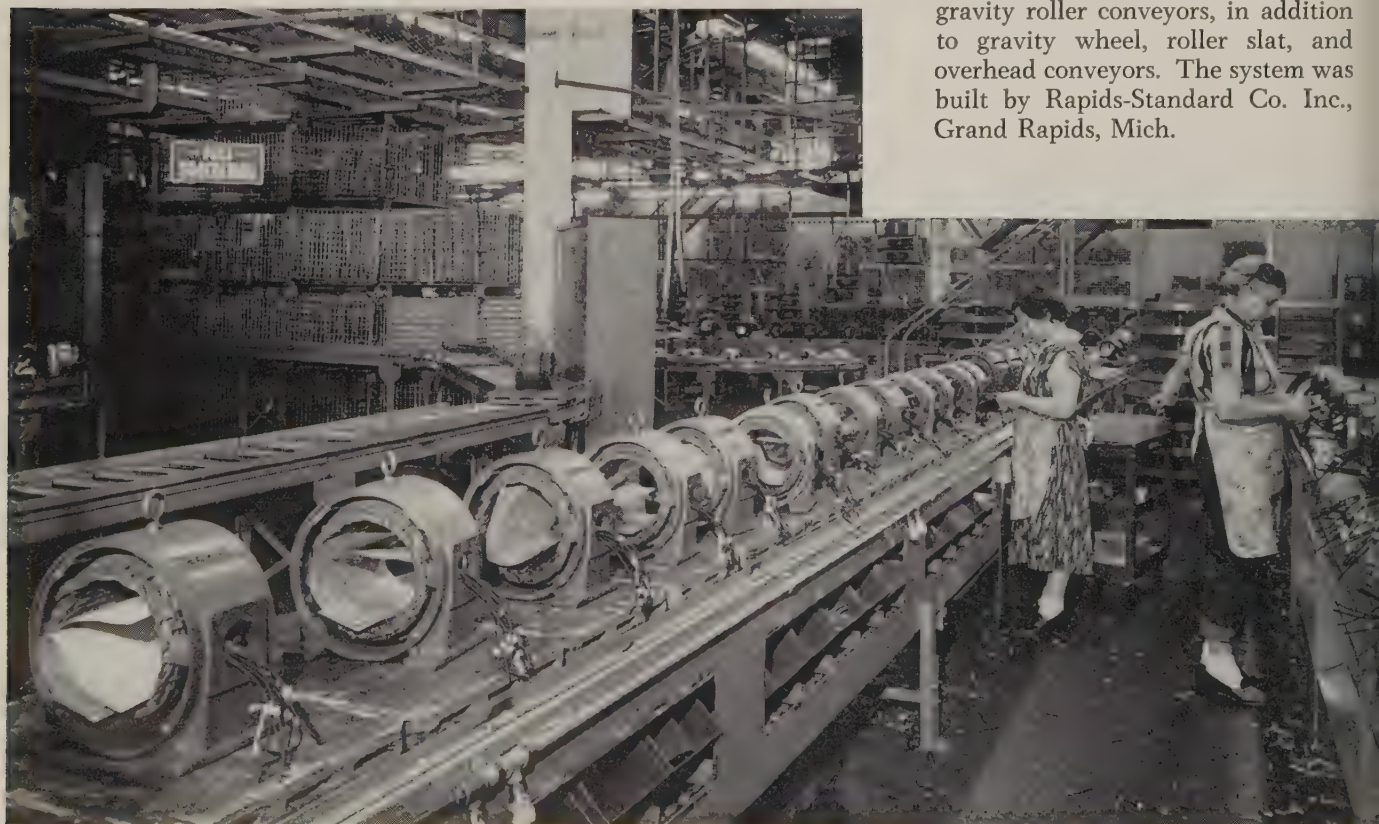


No 'Waiting'

When a production order is received, stator cores are removed from selection racks (above) and sent on gravity rollers to the co-ordination area. Meanwhile, the specified number of stator coils are wound and sent to the dispatcher who completes the subassembly. A roller line leads to the winding operation, and from there the core is forwarded to an area where joints are brazed, insulated, and sewed. The terminal assembly area is pictured below. Lines are powered at this point because of the increased weight

CONVEYORS keep parts moving and minimize intermediate storage at Reliance Electric & Engineering Co.'s Ashtabula, Ohio, plant. The system (for the production of electric motors) is set up to build parts for stock instead of being geared to the filling of orders.

The plant uses over 1000 ft of gravity roller conveyors, in addition to gravity wheel, roller slat, and overhead conveyors. The system was built by Rapids-Standard Co. Inc., Grand Rapids, Mich.

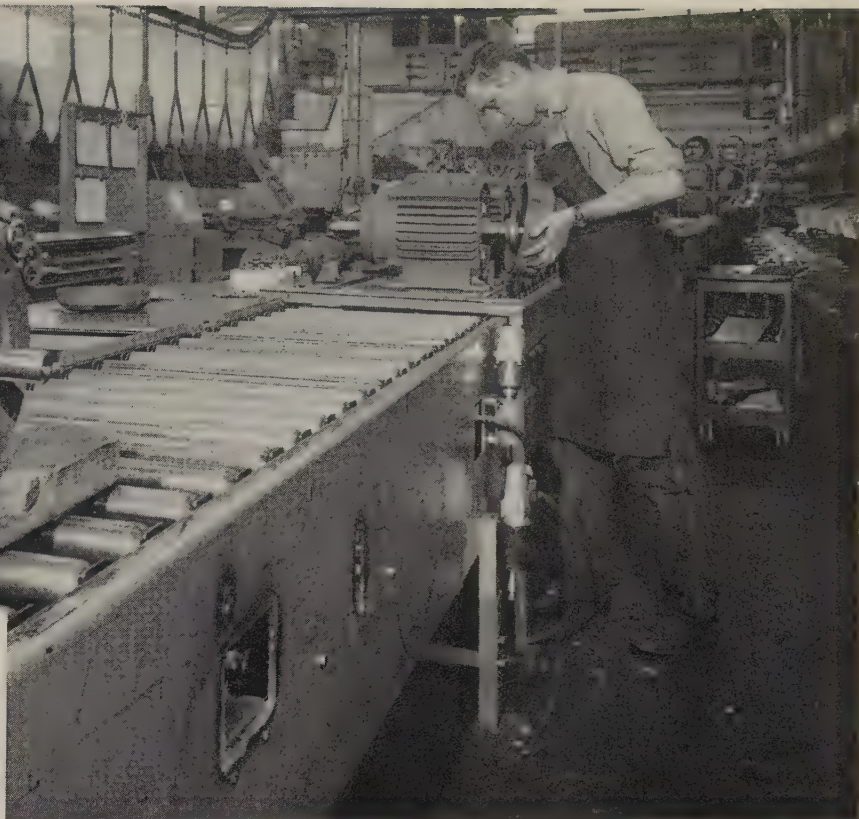


n This Line

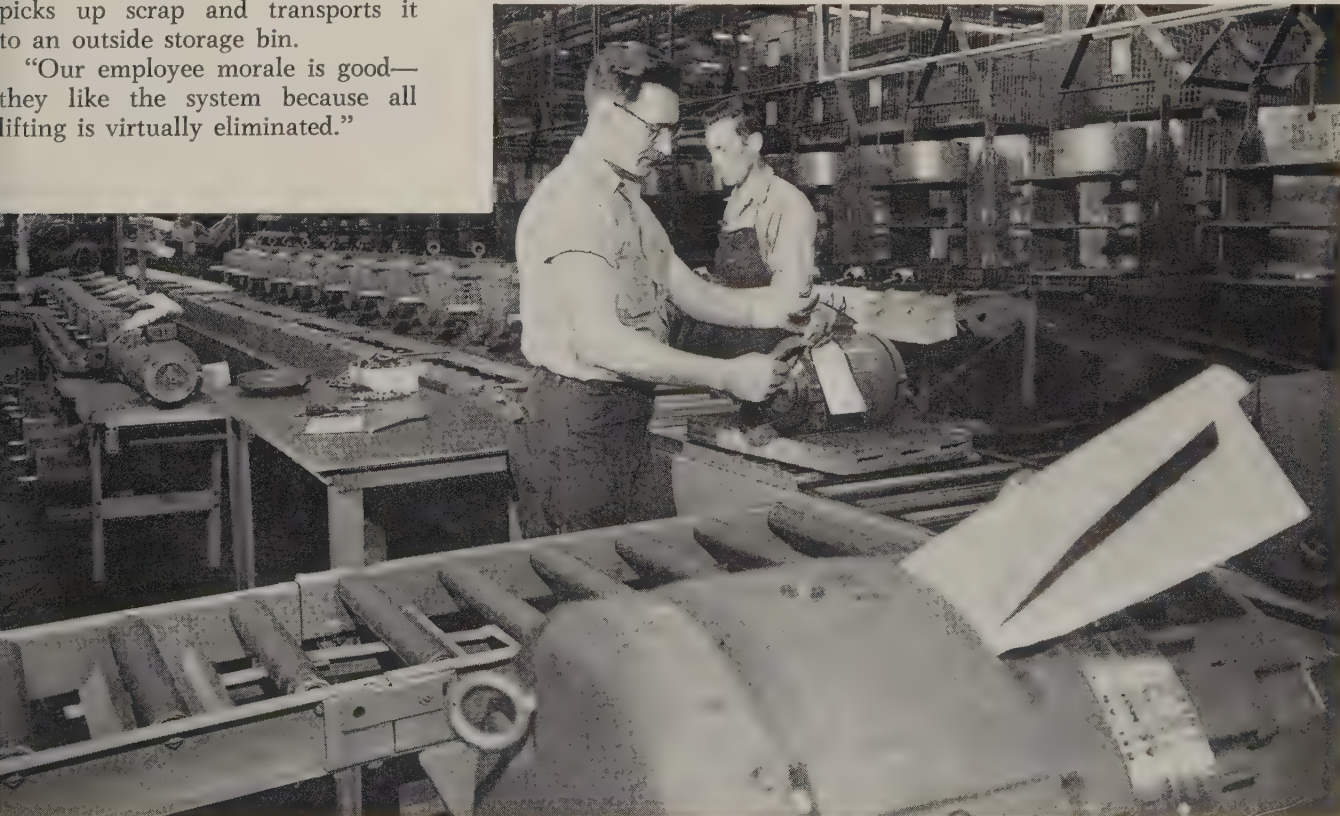
Reliance is tooled to produce over 350 assembled motors daily. Production of a completed motor takes three days, vs. five formerly.

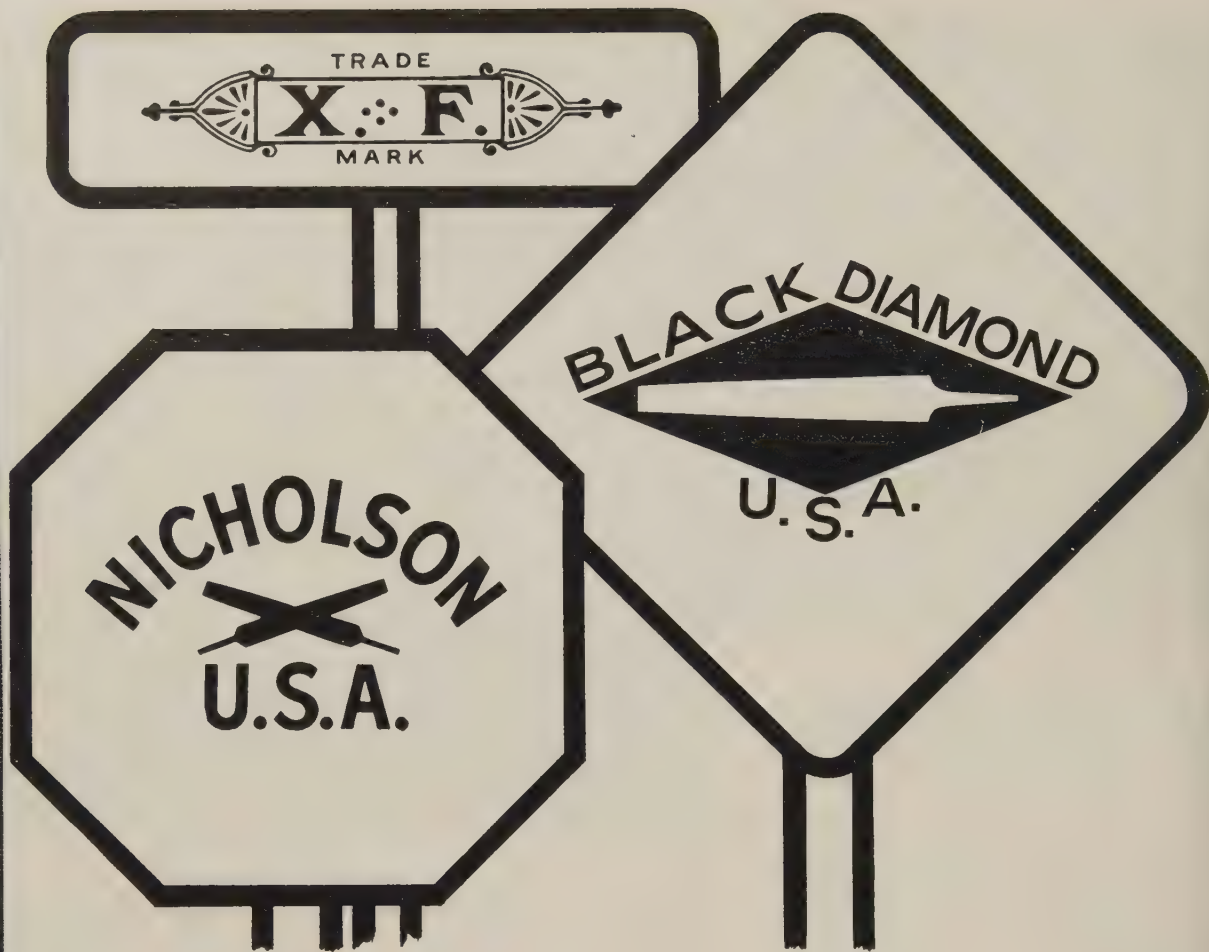
Elmer W. Frisbie of Reliance states: "Housekeeping is simplified because we don't have dead storage. We do not accumulate pallets, trays, boxes, or parts. A magnetic belt picks up scrap and transports it to an outside storage bin.

"Our employee morale is good—they like the system because all lifting is virtually eliminated."



Cores are carried through an automatic varnishing machine; then they are cleaned. The operator notifies five areas—frame storage, end part storage, (above), start of the rotor line, shipping office, and production control desk—that the motors are ready for assembly. The five areas start selecting parts and begin building subassemblies. All parts arrive in the final assembly area at the right time, where motors are assembled, tested, and readied for shipment. They are shown (below) after the final inspection





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NICHOLSON FILE COMPANY, PROVIDENCE 1, RHODE ISLAND

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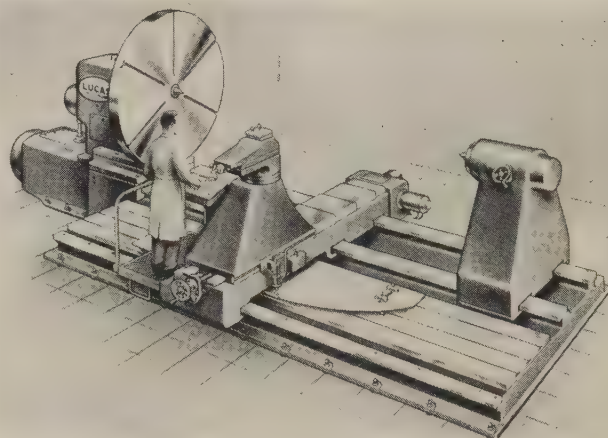
A FILE FOR EVERY PURPOSE

Large Lathe Is Numerically or Tracer Controlled

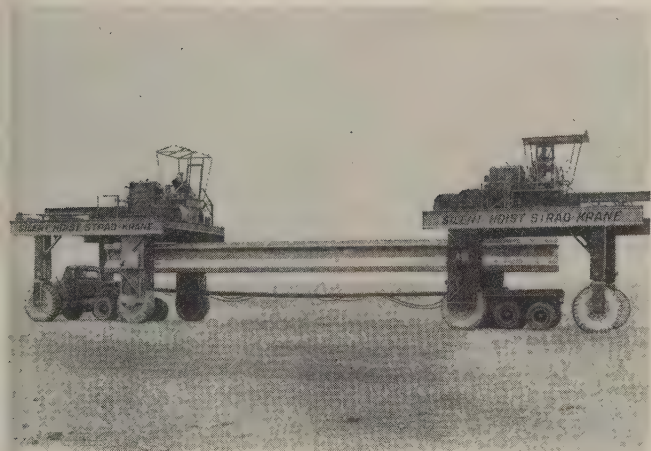
This lathe is designed for turning on cylindrical, conical, or developed shapes on lightweight pieces of great length and diameter. Three hardened and ground ways support the carriage.

The machine is available in semiautomatic and tape controlled models. The semiautomatic incorporates a one or two dimension electronic tracer control for cross slide and carriage. Cross slide and carriage of the automatic models are controlled by punched tape, numerical positioning or magnetic tape, contouring control.

On tracer controlled models, flat templates are mounted on a T-slotted plate between the outer and intermediate ways. Write: Lucas Machine Div., New Britain Machine Co., 12302 Kirby Ave., Cleveland 8, Ohio. Phone: Glenville 1-5588



Combination Truck and Crane Straddles Work



The Strad-Krane is a traveling bridge and mobile crane. The center of the load is always inside the wheel supports, eliminating the need for counterweights, stabilizers, or jacks. Inside clearance is 12 ft high and about 12 ft wide. Two units are shown in tandem.

The load is suspended from a hook under the frame. It can travel from one end of the machine to the other as well as up and down.

The machine is self-propelled on pneumatic tires. Power steering and power brakes plus excellent visibility provide fatigue-free operation.

Model ST25 has a 25-ton capacity and travels up to 10 mph forward or reverse. Write: Dept. 39, Silent Hoist & Crane Co., 841 63rd St., Brooklyn 20, N. Y. Phone: Beachview 8-2525

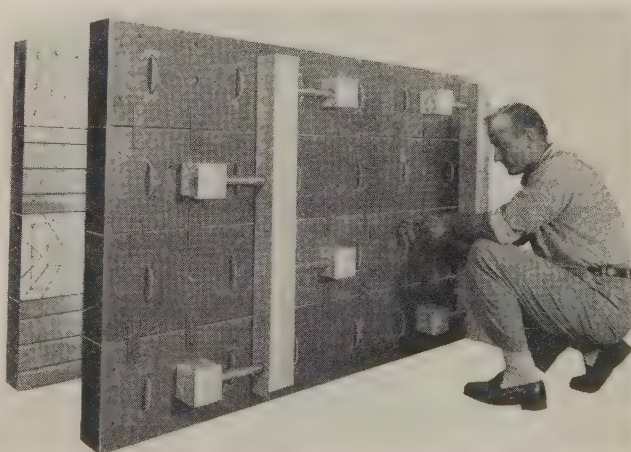
Flexible Ovens Built from Infrared Heating Modules

Infrared heating modules with housings that can be stacked into any layout to meet variable heating requirements use elements of formed resistance wire.

These units give immediate, even heat. They require minimum maintenance and are designed for long life. Their radiation heats all colors.

Handles on the back allow for stacking and rearranging from the outside. Modules have three power outputs: 1, 2, and 3 kw. Temperature runs up to 1500° F at the base.

Infrared is used in preheating for shrink fits, silver soldering, drying of aluminum in anodizing, drying of ground enamel frit prior to firing, and the baking of primers, enamels, and electrical varnishes. Write: Infrared Systems, P. O. Box 1, Pompton Lakes, N. J.



Drop-Bottom Dumping

A hydraulic box dump attachment for handling drop-bottom boxes fits Elwell-Parker fork trucks with capacities from 2000 to 10,000 lb.

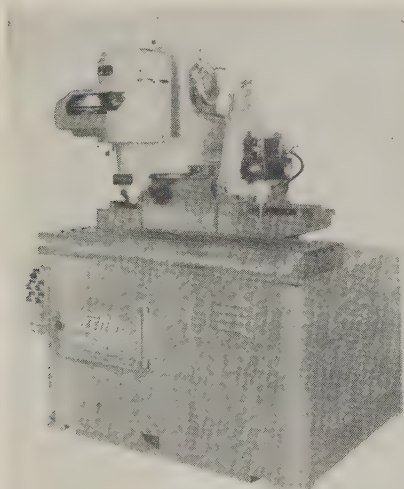


This type box may be loaded quickly and dumped onto floors or conveyors, or into bins, hoppers, or freight cars. Write: Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio. Phone: Utah 1-6200

Compact Tool Is Versatile

The Hydro-Router is equipped with Turchan tracing control, a stationary table for large overhanging workpieces, and a completely enclosed power unit.

The adjusting assembly features double crank, compound, rest-type handwheels with large dials readable



in 0.001 in. The slides and gibs are hand scraped to insure accuracy and the indicator is checked before and after installation.

The tracing feed rate is infinitely variable. Write: Turchan Follower Machine Co., P. O. Box 6055, Dearborn 9, Mich. Phone: Webster 3-6484

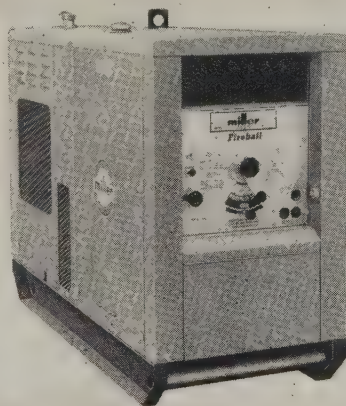
Provides Wrinkle Finish

Logo Wrinkle EA-616 is for use as a base coat for vacuum metallizing on metal stampings and castings. A 30-minute bake at 325° F will cure it to a hard, durable state. Write: Logo Div., Bee Chemical Co., 12933 S. Stony Island Ave., Chicago 33, Ill. Phone: Mitchell 6-0400

Welder Provides Power

The DAH-350 Fireball is the largest of three power options in a series of gasoline engine driven welder-powerplants.

This model is a four-in-one unit that incorporates an ac-dc welder for metallic arc or tungsten inert gas



welding, an ac powerplant, and 1 kw of dc power while welding.

Six separate amperage ranges are available in both alternating and direct current. Write: Miller Electric Mfg. Co. Inc., Appleton, Wis. Phone: Regent 3-6621

Pumps Subzero Fluids

Four complete lines of standard pumps handle liquid oxygen, nitrogen, methane, and other fluids to -320° F and below.

The pumps may be operated over the entire performance range, even back to near-zero capacity, without damage, and capacity can be varied by changing the speed of the driver,



rather than using throttling valves.

The seal has a built-in throttle bushing that prevents hazardous leakage should a seal component fail. Write: Byron Jackson Pumps Inc., Borg-Warner Corp., P. O. Box 2017-A, Terminal Annex, Los Angeles 54, Calif. Phone: Ludlow 7-6171

Liquid Cleans Aluminum

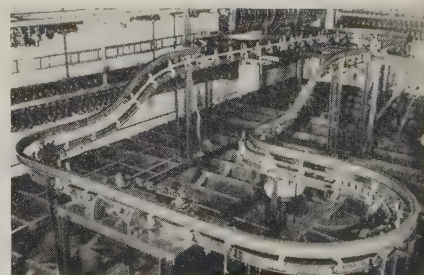
Deoxalum, an aluminum cleaner and deoxidizer, is applied by brushing on the aluminum surfaces before welding or joining.

It can be wiped off—no brushing is required. Small parts can be treated by dipping and flushing with water. Write: Clarkson Laboratories Inc., 930 N. Darien St., Philadelphia 23, Pa. Phone: Market 7-6764

Conveyor Has Pusher

A Power-Push overhead conveyor for light to medium duty can be made to specifications. The system consists of standard components plus a four-wheel trolley that carries loads up to 150 lb, and a pusher mechanism.

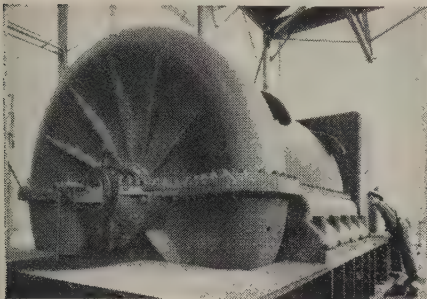
The trolley on the power line pushes the trolley on the free line. The two lines can be diverted by being curved away from each other



More Ways

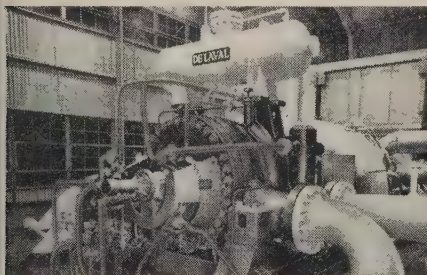
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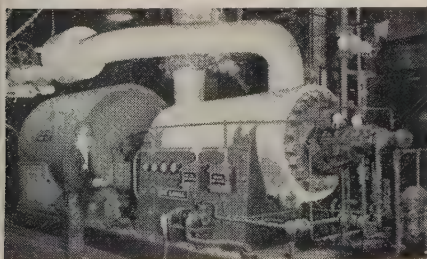
Centrifugal Compressors for Refineries

Shown here is a De Laval 10,200 H.P. turbine-driven main air blower handling 83,000 cubic feet per minute at the Ashland Oil & Refining Co., Ashland, Ky.



Extra Flexibility for Gas Pipelines

Creative engineering developed new De Laval Series-Parallel centrifugal compressors to meet booster stations' demand for exceptional flexibility.



Rugged Feed Pumps for Public Utilities

De Laval couples creative engineering and precision manufacturing methods to produce multi-stage centrifugal pumps for boiler feed service—built to handle pressures up to 5,500 pounds. This is an 11-stage unit in the Astoria Station of Con Edison.

Investigate the advantages of De Laval's creative engineering in refinery and pipeline compressors, steel mill blowers, ship propulsion units and marine auxiliaries, turbine generators, IMO pumps, worm gearing, planetary gearing and diesel engine turbochargers.

Send today for 48-page booklet—"Men, Machines and Materials at DE LAVAL."

De Laval Steam Turbine Company
860 Nottingham Way, Trenton 2, New Jersey

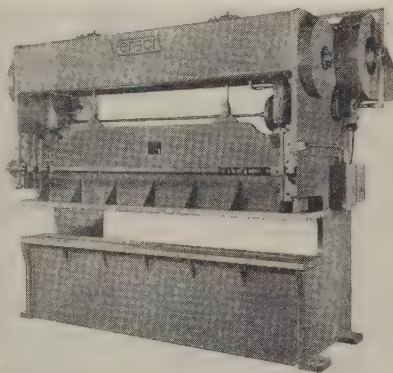
NEW PRODUCTS and equipment

horizontally or by dropping the free line away from the power line—the free trolley then moves by gravity or by manual operation.

Speeds up to 50 fpm can be obtained. Write: Rapistan-Keystone Co., Inc., 21751 W. Eight Mile Rd., Detroit, Mich. Phone: Kenwood 4-7600

Large Bed Area Featured

A gang punching machine for light tonnage has a large bed and ram area. It provides a capacity of 60 tons and is equipped with elec-



tric pushbutton clutch control, automatic lubricating system, and air counterbalance of the ram.

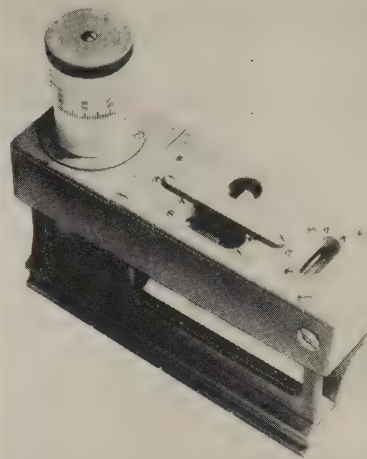
Stroke is 4 in. with 4 in. of ram adjustment (power driven). Shut height is 14 in., bed and ram area is 20 x 132 in., and operating speed is 45 strokes a minute. Write: Verson Allsteel Press Co., 9300 S. Kenwood Ave., Chicago 19, Ill. Phone: Regent 4-8200

Level Reads Rapidly

Critical leveling and measuring operations for flatness, straightness, and parallelism are performed accurately with the Griswold optical level.

Three bubble-phials are in the hinged top of the instrument. By observing them, deviations from the horizontal of 0.00012 in. per foot of length or 0.0001 in. per inch of length can be quickly determined.

Two prisms, arranged so that half images of opposite ends of the air bubble are viewed against each other, provide twice the separation that would ordinarily be indicated by only one end. Write: F. T.



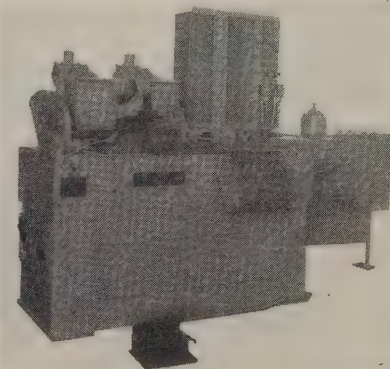
Griswold Mfg. Co., 315 W. Lancaster Ave., Wayne, Pa. Phone: Murry 8-4080

Flash Welder Automatic

The 400 KVA-F5 automatic flash-welder handles hot-rolled steel rings $\frac{3}{8}$ in. thick up to 8 in. wide, and flat stock.

Air operated, alligator-type clamps hold the work. An upset force of about 38,000 psi is derived from a double acting, hydraulic cylinder.

An electrical control panel with all necessary relays and timers con-

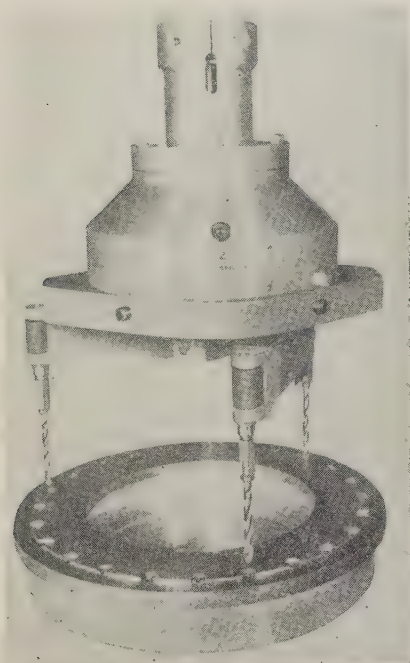


trols the functions of the hydraulic unit, as well as clamping, flashing, upset, weld power interruption, unclamping, and platen return. Write: Federal Machine & Welder Co., Warren, Ohio. Phone: 4-2521

Drill Head Adjustable

Adjustable multispindle drill heads accommodate from 2 to 10 spindles in sizes of 7, 10 $\frac{1}{2}$, 12 $\frac{1}{2}$, and 15 $\frac{1}{2}$ in. Bolt circles up to 23 in. in diameter allow most hole patterns to be drilled or tapped within a given circle.

Spindle arms can be removed and replaced quickly. The head can be

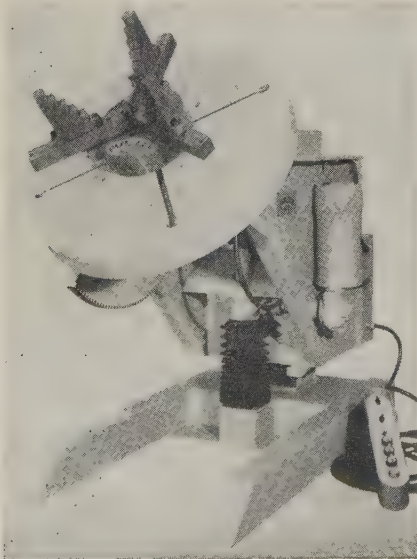


used on any standard drill press. It is a complete unit (no auxiliary equipment needed). *Write:* Zagar Inc., 24000 Lakeland Blvd., Cleveland 23, Ohio. *Phone:* Redwood 1-0500

Welding Speed Set Fast

Automatic arcwelding of various diameter cylinders at any required speed is accomplished fast by this 3000-lb capacity welding positioner.

The rotation drive and controls allow the operator to quickly set the rotative welding speed in inches per minute to the desired value. The system automatically correlates three variables—table speed, workpiece



diameter, and welding speed. *Write:* Pandjiris Weldment Co., 5151 Northrup Ave., St. Louis 10, Mo. *Phone:* Prospect 6-6893

Grease for Multiservice

Mobilplex EP can be used in place of many special purpose greases.

It withstands extreme pressures, has long service life, is water resistant, and maintains chemical stability at temperatures from -150 to $+300^{\circ}$ F. It protects against rust and is compatible with other greases. *Write:* Industrial Lubricating Dept., Socony Mobil Oil Co. Inc., 150 E. 42nd St., New York 17, N. Y. *Phone:* Oxford 7-4200

Unit Converts Current

Any alternating current welding machine can be converted to direct current output with one of two portable converters.

Model A2500C converts up to 250 amperes; Model A4500C, up to 450 amperes.

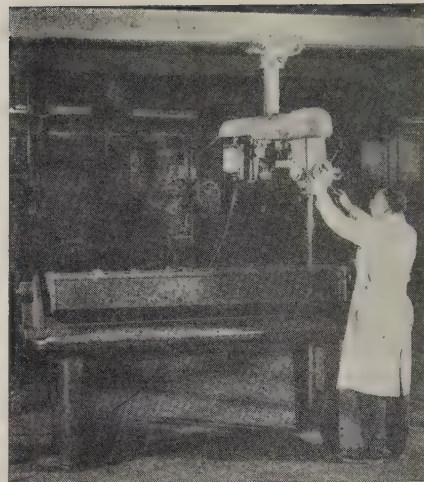


Each is a self-contained unit that can be placed on top of any welder, and only two connections are required with no need for auxiliary connections to a 110-volt line. *Write:* Welding Products Div., A. O. Smith Corp., Milwaukee, Wis. *Phone:* Uptown 3-3000

Drill Mounted on Track

An accessory permits mounting a 20-in. drill head on an overhead track. The setup is useful in drilling panels, sheets, plates, large work, or anywhere the workpiece is difficult to move.

The spindle may be positioned over any point within 10 in. of either side of the track anywhere along its length.



The accessory is a carriage and column which may be mounted with a standard 20-in. Delta drill head and its raising mechanism on a jib crane or similar type track. *Write:* Delta Power Tool Div., Rockwell Mfg. Co., 490 N. Lexington Ave., Pittsburgh 8, Pa. *Phone:* Churchill 1-8400

Drill Eliminates Dust

This air hammer provides a solution to dust problems in drilling concrete, brick, plaster, and other masonry.

Thor No. 15-DL utility drill sucks in drilling dust through hollow drilling steel. The dust moves out ports in the back head of the tool and into special extracting tanks.



The drill is teamed with the Thor No. 50 dust extractor which is mounted on a cart equipped with casters. *Write:* Thor Power Tool Co., Prudential Plaza, Chicago 1, Ill. *Phone:* Aurora 2-7601

NEW Literature

Write directly to the company for a copy

Flexible Couplings

Bulletin No. 10100A covers latest additions to the line of Sure-Flex couplings. Revised tables include units with ductile iron flanges, and specially balanced couplings. T. B. Wood's Sons Co., Chambersburg, Pa.

Heat Treating Equipment

Bulletin No. 242 contains data on hardening, carbonitriding, and carburizing furnaces (batch and continuous). Lindberg Engineering Co., 2444 W. Hubbard St., Chicago 12, Ill.

Bronze Bushings

"Chemical and Physical Specifications of the Bronze Alloys" lists the various types most commonly used for bushings and bearings. It gives the alloy or ingot number, grade and properties of 24 alloys, and lists the military, SAE, Navy, aeronautical, ASTM, and federal specification comparatives for all these alloys. Renewal Service Inc., 17th and Lehigh Avenue, Philadelphia 32, Pa.

Stainless Steel Wire

A 20-page manual provides information on the use of stainless steel wire, its mechanical properties, and corrosion data. Tables list round wire weights, conversion of fractions to decimals and millimeters, and analyses of stainless steel types. Stainless Steel Div., Jones & Laughlin Steel Corp., Box 4606, Detroit 34, Mich.

Sponge Iron

A 20-page manual, Form No. 114, explains the use of sponge iron as melting stock, the analysis of sponge iron, carbon, and carbon potential—and the importance of purity. The role of sponge iron in quality steelmaking in the acid open hearth, basic open hearth, electric arc furnace, and high frequency furnace is covered in detail. Hoeganaes Sponge Iron Corp., Riverton, N. J.

Speed Reducers

"Shaft-Mounted Speed Reducers," booklet B-7238, discusses horsepower selection and ratings, dimensions, construction, installation, and maintenance of Moduline shaft-mounted units. Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa.

Conveyor Aid

A slide-card conveyor belt troubleshooter affords a quick way to locate probable causes of conveyor troubles and

lists specific cures. Conveyor Products, Mechanical Goods Div., United States Rubber Co., Passaic, N. J.

Sling Chains

Bulletin DH-39 describes Kuplex sling chains in one, two, three, and four leg styles with sling, sling grab, and foundry type hooks. American Chain & Cable Co. Inc., 929 Connecticut Ave., Bridgeport 2, Conn.

Hand Screw Machine

This bulletin describes the Delta hand screw machine designed to cut costs associated with short production runs. Data on how to convert a standard Delta lathe

to this type machine are included. Delta Power Tool Div., Rockwell Mfg. Co., 489 N. Lexington Ave., Pittsburgh 8, Pa.

Plain Grinders

Catalog B-571 describes 10-in. CH and 14-in. LCH plain cylindrical grinders. Specifications and work setups possible are given. Landis Tool Co., Waynesboro, Pa.

Welding Equipment

Folder DM-73 covers automatic and semiautomatic welding equipment, power sources, wire feed mechanisms, guns, heads, and controls for submerged arc and inert gas, shielded arc welding. Hobart Bros. Co., Hobart Square, Troy, Ohio.

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EVERYDAY USE IN
THOUSANDS OF PLANTS



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ONE-WAY SHUT-OFF

The ability of Hansen Push-Tite Couplings to withstand severe service—with practically no maintenance—has been thoroughly proved by years of hard, everyday use in thousands of plants. The "socket head", which contains the locking device, is factory assembled into a rugged integral unit which cannot be readily injured or have component parts lost by casual tampering. To connect the Coupling, you merely push the Plug into the Socket with one hand. Flow is instantaneous. To disconnect, push back sleeve on Socket—Coupling disconnects. Flow is shut off instantly and automatically.

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Here's an always ready reference when you want information on couplings in a hurry. Lists complete range of sizes and types of Hansen Quick-Connective Couplings. Write for your copy.

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Market Outlook

Buyers To End Inventory Cutbacks

STEEL INVENTORIES will bottom out by the end of the month.

In spite of vacations in the major consuming industries, stocks were cut substantially last month. Industry researchers estimate that consumption exceeded shipments by at least 500,000 tons. Analysts of one company say the July reduction (nearly 2 million tons) was the greatest of any month since liquidation began.

Although there's a wide divergence of opinion on the rate of inventory reduction, most observers agree on two points:

1. Liquidation started in May or June of 1957, when consumers had about 24 million tons of steel.

2. It will end at about 12 million tons because users won't risk keeping less than a two-month supply. (September-October consumption is expected to be 12 million tons.)

Shipments should about equal consumption during August. By the end of the month, consumers will have their inventories where they want them.

SEPTEMBER BUILDUP?—There's little likelihood of an immediate switch from reduction to accumulation, but one expert thinks consumers will have to add 300,000 tons to their stocks during September just to maintain a 60-day inventory. He looks for a 500,000-ton buildup in October as automotive production moves into high gear. Another half million tons will be added during November and December, he believes.

GROUND FOR OPTIMISM—Asked his reasons for thinking that steel users will pad inventories, the market analyst replies: "Predictions that the automotive industry will build only a million cars during the fourth quarter are ridiculous. I expect production to hit 1,450,000. Construction activity is going strong again after faltering briefly, and the appliance business is on the upswing. About the only markets that don't look good are railroads and nonelectrical machinery."

PLATE INVENTORIES HEAVY—Three months ago, nearly a third of the participants in STEEL's quarterly survey of metal inventories said they had too many plates on hand. In the latest survey (see Page 121), 10 per cent of the light plate and 7 per cent of the heavy plate buyers say their stocks are excessive. They'll continue cutbacks during the third quarter.

AUTOMAKERS CAUTIOUS—Although they've

placed sizable orders for steel to be used in 1959 models, automakers will keep close checks on their purchases until they have a contract with the UAW and proof that their cars are being well received. Dealers have fewer unsold cars than they had a year ago. By Sept. 1, their inventories should be between 275,000 and 300,000. Initial production runs of 300,000 units will fill up the pipelines. Then the industry can sit back and see how orders for '59s come in before revising production schedules.

ROAD MACHINERY ON UPGRADE—Makers of road building machinery are stepping up production and buying more steel. Caterpillar Tractor Co. will rehire about 1000 workers at its plants at Peoria, Decatur, and Joliet, Ill., this month. Clark Equipment Co., Buchanan, Mich., says sales of its construction equipment are the highest in five years.

OUTPUT EDGES HIGHER—The industry hiked its operating rate 3 points last week to 59 per cent of capacity. Production was about 1,593,000 net tons of steel for ingots and castings. July's output (6.5 million tons) made it the third best month of the year. Higher production is strengthening the scrap market. STEEL's composite on the prime grade jumped to \$40.33 a ton, up \$2.66.

WHERE TO FIND MARKETS & PRICES

News Prices			News Prices		
Bars, Merchant	122	131	Pig Iron	128	136
Reinforcing	148	132	Piling	...	131
Clad steel	...	135	Plates	127	131
Coke	...	137	Plating Material	...	147
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Comparisons	...	129	Refractories	...	137
Contracts Placed	139	...	Scrap	141	142
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Metal Powder	...	137	Tool Steel	...	135
Nonferrous Met.	144	146	Tubular Goods	124	135
Ores	128	137	Wire	125	133

Introducing Allied's

IRILAC^{T.M.} #1000

New Clear Protective Coating for All Metals . . . as safe and easy to handle as Water!

New method of protection incorporates corrosion inhibitors in a water-soluble polymer base. Dries to an extremely thin, tough, durable coating—clear in color. Does not chemically affect base metal or any post-treatments. Used as a protective treatment alone or to enhance value of post-treatments.

Allied's new Irilac #1000 is a concentrated solution of a water-soluble polymer with built-in complex corrosion inhibiting materials. It was developed to answer the needs of the metalworking industry for a non-conversion process that will provide corrosion resistance and resistance to fingerprinting and abrasion on base metals and electrochemically or chemically finished surfaces—without changing the appearance of the metallic surface.

There are no hazards involved—Irilac is non-fuming, non-toxic, and requires no special fire prevention measures.

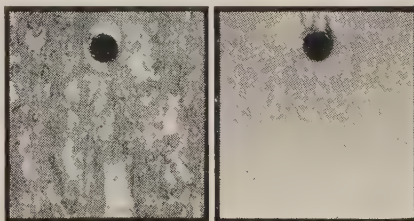
THE PROCESS

Irilac #1000 is diluted with water to provide a simple one-pass working solution. It is then applied by dip, brush or spray and forms a coating that quickly bonds to the metal surface without reacting with the surface.

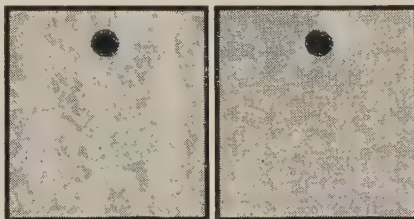
THE PROPERTIES

The resulting coating is clear, transparent, thin yet durable. It has excellent water-resistant properties, and can be rubbed, handled and subjected to rough treatment. The surface to which Irilac has been applied is not altered—in fact, the transparent coating brings full tone to colored surfaces and clarity to iridescent surfaces. The water-thin physical characteristic of the solution means that the coating provides protection

in recessed areas that are difficult, if not impossible, to protect with other methods.



STEEL PANELS: bare (left) and coated with Irilac (right) after 8-hour salt spray.



ALUMINUM PANELS: bare (left) and coated with Irilac (right) after 168-hour salt spray.

WHERE IRILAC CAN BE USED

Irilac #1000 can be applied to any metal—wet or dry—treated or untreated. All metals can be processed in one operation in the same solution. It can be applied in conjunction with any process—over Iridite, anodized, phosphated surfaces, black oxide, etc. Surfaces treated with Irilac provide a good base for paint.

APPLICATION ADVANTAGES

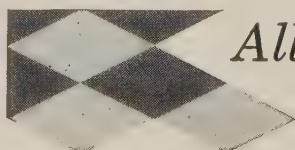
No other process or material available for the protection of metals offers all the application advantages found in new Irilac #1000:

- 1** It can be applied to any clean metal simply by dip, brush or spray. No special equipment is required.
- 2** Saves time—just apply and dry—no reaction time required.
- 3** No hazards involved—no exhaust or special fire protection equipment is required. Irilac is non-fuming and non-toxic.
- 4** Saves space. Presents no disposal problem. Low in first and final costs.

Because of its versatility and complete safety, Irilac has unlimited uses. For example, it will protect aluminum furniture, brass hardware and fixtures, steel parts of all types, zinc castings, etc. In fact, any base metal or plated surface, or those treated with electrolytic or chemical post-treatments, can be improved or enhanced with Irilac.

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West Coast Licensee: L. H. Butcher Co.

MILL PRODUCTS	CURRENT INVENTORIES					4th Quarter FORECAST		
	UNDER 10 DAYS	10-30 DAYS	30-60 DAYS	60-90 DAYS	3-6 MONTHS	LOWER	SAME	HIGHER
HOT-ROLLED CARBON BARS	5%	23%	46%	15%	11%	22%	64%	14%
COLD-FINISHED BARS	1%	18%	52%	16%	13%	17%	69%	14%
H & C-R SHEETS, STRIP	11%	11%	55%	18%	5%	16%	73%	11%
LIGHT PLATES :	10%	12%	40%	26%	12%	29%	62%	9%
HEAVY PLATES	13%	6%	42%	29%	10%	27%	66%	7%
STRUCTURAL SHAPES	13%	22%	40%	9%	16%	22%	62%	16%
COPPER & BRASS	13%	23%	37%	20%	7%	8%	68%	24%
ALUMINUM	15%	10%	57%	17%	1%	8%	74%	18%

FIGURES are percentages of respondents to STEEL's quarterly survey. COLOR UNDERScoreD figures show how most respondents reported.

Inventory Reduction Tapers Off

Users of nonferrous metals stop trimming supplies. They'll build stocks in next quarter. Most steel buyers say their stocks are satisfactory for current needs

CUTBACKS in nonferrous inventories have skidded to a stop. They're slowing in most steel products. Buyers of virtually all mill items are more satisfied with supplies today than they were three months ago. That's what STEEL's third quarter survey of metal inventories shows.

For the first time since 1956, the number of buyers intending to add to their supplies of copper, brass, and aluminum is greater than the total expecting to cut back.

Six months ago (STEEL, Feb. 3, p. 159), 28 per cent of nonferrous purchasers said they planned inventory cuts in the next quarter, while 6 per cent expected to build

stocks. In the second quarter (STEEL, May 5, p. 125), 21 per cent predicted a drop within the next three months, while 9 per cent planned an increase.

Trend Changes—Only 8 per cent of nonferrous buyers think their stocks will be lower three months from now. Eighteen per cent of aluminum purchasers and 24 per cent of copper and brass users believe they will be higher.

Steel buyers have not completed inventory reductions in hot-rolled bars, plates, and structurals, although they're nearing satisfactory levels in cold-finished bars, sheets, and strip. Only in hot-rolled bars has the percentage of buyers plan-

ning further reductions in stocks increased since the most recent STEEL survey, and the gain is a slender 3 per cent.

Overstock Is No Problem—Fabricators of structural shapes made excellent progress in the last three months in reducing topheavy inventories. In May, a hefty 24 per cent said they had more than they wanted. Now, only 10 per cent believe their inventories are "too high."

Buyers of other products are equally pleased with their inventory levels. In May, 30 per cent of plate fabricators said their stocks were too high for comfort. Now 8 per cent think they're too high. Almost all of these buyers believe lingering overstocks will be corrected by the beginning of the fourth quarter.

Three months ago, 21 per cent of all steel buyers said their inventories were overly large. Now, that

proportion has dropped to 9 per cent. Only 7 per cent of nonferrous metal buyers think they have too much.

Signs of Business Gains—Significantly, there are no major changes since May in the levels of current inventories. Many firms thought 60 to 90 days' supply of metal was "too much" in May when they faced a dull summer. A major proportion of this group have the same tonnage now, but they aren't complaining. They predict that con-

sumption of metal will gain in the third or fourth quarter.

Here's how some purchasers view inventory levels: A midwestern buyer for a major appliance manufacturer said he had too many cold-finished bars in May when the firm held 30 days' inventory. That buyer has the same amount of stock now, but he considers it satisfactory in view of a possible pickup in appliance production.

Three months ago, an eastern aluminum fabricator said 45 days'

supply was too much. Now the same inventory is considered satisfactory, and the firm expects to build its stocks in the next quarter.

A California buyer of plates with 60 days' supply in May intended to cut back in June. That purchasing agent now considers 60 days' supply to be "about right" in view of business conditions.

Outlook Bright—With little displeasure over the state of inventories, and with deliveries generally satisfactory, purchasing agents look to the next quarter with a growing measure of confidence.

Steel Bars . . .

Bar Prices, Page 131

While still sluggish, commercial bar business is a trifle better than it was, though there is no important emphasis on automotive needs as yet and little demand from the railroads.

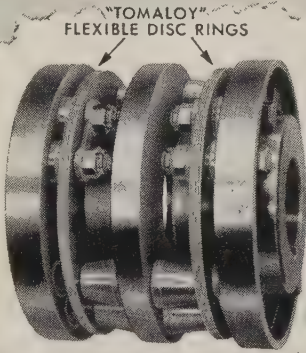
The more popular sizes of bars can be had for early shipment; deliveries on the not too popular sizes are rather extended. For instance, bar size angles can be had within two to three weeks, but certain sizes of bar flats are difficult to obtain under five to six weeks.

The answer is that mill production is concentrated more on the sizes in best demand, leaving the less popular tonnage to be worked into schedules when there is sufficient accumulation to warrant a rolling.

Venders Active — Auto suppliers are ordering more bars. A Detroit producer says venders seem to be feeling their way into the market. He has orders for cold drawn bars to be delivered in mid-August and September. The increase in activity is reflected in a sharp reduction in another bar-maker's inventory, down to 6000 tons from 10,000.

"We can't pinpoint the improvement," says a cold-drawn producer at Pittsburgh, "but business is definitely on the upswing. We booked more orders in July than we did in June, and we're encouraged by the outlook for August. One of the Chrysler Corp.'s suppliers came in recently to increase the tonnage it will take next month. Most of the automotive business so far has been for parts that are repeats of those used in the '58 models."

May Build Stocks—The threat of



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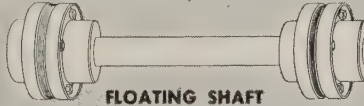
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trouble in the Mideast doesn't seem to have accelerated bar purchases to any noticeable extent. Users, though, will be inclined to build up inventories should the trouble continue.

Makers of road building machinery are expanding their operations and are buying more steel. Caterpillar Tractor Co. announced it will rehire about 1000 workers at its plants at Peoria, Decatur, and Joliet, Ill., in August, and it hopes to recall more before the end of the year. Caterpillar has finished planned reductions in inventory and deems it advisable to keep production matching sales.

Clark Equipment Co. reports that sales of its Construction Equipment Div. are the highest since the unit was formed five years ago.

Buying Holding — Steel buying for farm equipment is holding up well even though this is the season when manufacturing activity tapers.

Appliance buying of steel is looking a little better.

Bliss & Laughlin Inc., Harvey, Ill., maker of cold-finished bars, reports its backlog of unshipped orders continues at a low level. But the company is encouraged by the upward trend indicated by the pattern of new orders for third quarter delivery. A slow but steady rise in operations is expected the rest of this year.

Sheets, Strip . . .

Sheet & Strip Prices, Pages 132 & 133

Automotive suppliers have followed the carbuilders into the steel market and are asking for tonnage to be delivered from mid-August through September. The steel is for October production needs, and mill sources indicate that tonnages are about equal to those placed at this time a year ago. It's expected that mid-August releases will show a pickup in shipments.

Activity in autos and some uncertainty about defense needs are sparking a small increase in orders from other consuming lines. More orders from appliance makers are noted. Detroit mills say orders show a 20 to 25 per cent pickup in tonnage for September shipment.

At Detroit, most of the action is in cold rolled, particularly strip. There seems to be relatively few orders for hot-rolled sheets there, but one district mill says it has some

commitments scheduled for early August release. Over-all, automotive demand for sheets is described as the best since January. Some mills think they have orders for about 75 per cent of automakers' September requirements.

"We'll ship a lot more sheets in August than we did in July but not as many as a year ago," a Pittsburgh district mill predicts. It already has booked more cold-rolled sheets for August than it entered in June.

Sheet orders in New England are building up to about the June rate for August shipment. The July slump there was less than had been expected. Prompt delivery is usually stressed indicating that consumers' inventories are low. At St. Louis, prospects are improving. Farm implement business there is fairly substantial, and a pickup in miscellaneous manufacturing demand is indicated.

Galvanized sheets continue to move actively into consumption.



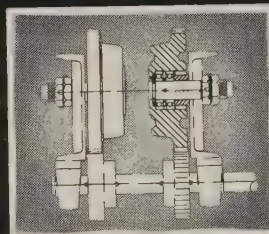
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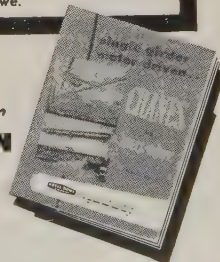
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**ABELL-HOWE
COMPANY**

7757 W. Van Buren St., Forest Park, Illinois

Shipments of Tubular Products

(Net tons, all grades)

Products	May, 1958 Shipments		Shipments First Five Months, 1958	
	Domestic	Exports	Domestic	Exports
Seamless				
Standard pipe	22,506	1,159	112,932	7,215
Oil country goods	45,349	6,653	357,578	58,800
Line pipe	37,390	3,284	147,110	19,335
Mechanical tubing	23,894	167	132,930	1,238
Pressure tubing	13,604	598	72,552	2,542
Totals	142,743	11,861	823,102	89,130
Lapweld:				
Standard pipe	5,617	82	23,976	218
Oil country goods (a)				
Line pipe (a)				
Totals (b)	6,503	287	31,190	595
Buttweld:				
Standard pipe	158,412	1,936	642,075	7,322
Oil country goods (a)				
Line pipe (a)				
Totals (b)	179,067	2,228	730,545	10,113
Electricweld:				
Standard pipe	9,264	9	23,414	511
Oil country goods	9,844	356	61,546	1,614
Line pipe	184,403	17,463	578,800	186,933
Mechanical tubing	13,855	134	70,348	924
Pressure tubing	6,303	66	31,209	394
Totals	223,669	18,028	765,317	190,376
Gasweld & Spiralweld:				
Oil country goods (a)				
Line pipe	6,304	373	29,777	4,263
Mechanical tubing (a)				
Totals	7,660	373	36,140	4,367
Total:				
Standard pipe	195,799	3,186	802,397	15,266
Oil country goods	57,159	7,009	425,820	60,518
Line pipe	246,890	21,583	840,531	213,631
Mechanical tubing	39,887	315	213,785	2,230
Pressure tubing	19,907	664	103,761	2,936
Grand Total	559,642	32,757	2,386,294	294,581

(a) Withheld to avoid disclosing figures of individual companies.

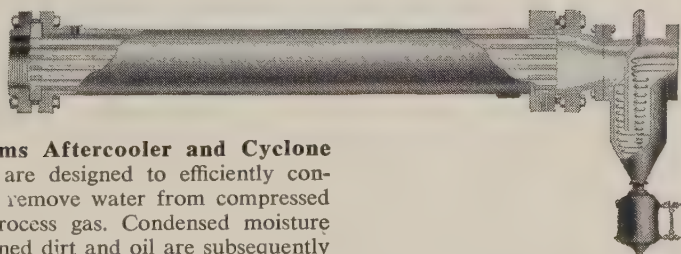
(b) Includes mechanical tubing.

Data from the American Iron & Steel Institute.

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The Adams Aftercooler and Cyclone Separator are designed to efficiently condense and remove water from compressed air and process gas. Condensed moisture and entrained dirt and oil are subsequently removed in a cyclone type separator. This unit is scientifically designed for maximum removal efficiency over a wide range of flow rates.

For normal use, units are available to cool gases to within 10° F of the temperature of the cooling water. Specially designed units are available to permit a 2° F approach to cooling water temperature, for application where low moisture content is critical.

Adams Aftercoolers and Separators are available from stock to handle 20 - 40,000 cfm with 10° cooling and 25 - 19,200 cfm

where it is necessary to cool within 2° F of the cooling water. Special units can be supplied to suit an unlimited range of requirements. In all cases the maximum pressure loss at rated capacities is ½ psi.

This wide range of sizes enables the economical utilization of Adams Aftercoolers and Separators in virtually all industrial application. For further information on how R. P. Adams' units will solve your compressed air problems and save you money, write today for Bulletin 711.

and no halt in the tonnage movement is sighted.

Tubular Goods . . .

Tubular Goods Prices, Page 135

Volume of July shipments of mechanical tubing were about the same as June's, reports a Pittsburgh district seller. Demand has been so intermittent that it's hard to detect a trend. To date, there has been no improvement in automotive requirements.

"There's a note of urgency in the orders we're getting," says the manager of pressure tube sales for one mill. "Most of our customers are buying on a hand-to-mouth basis, gambling on our ability to deliver within ten days or two weeks.

"If their purchases are indicative of the business they're doing, the over-all situation isn't good. Little or no hedging is being done, and speculation that a second round of hedging might develop is wishful thinking, we believe."

Pressure tubing is making a better showing than mechanical tubing, because of renewed activity among boiler manufacturers.

Three plants of U. S. Steel Corp. will share in the production of a new order for 85,500 tons of gas pipe. The order was placed by the Natural Gas Pipeline Co. of America Inc., which is building a 490-mile pipeline from Oklahoma to the Chicago area. About half the order, 43,000 tons of 36-in. pipe, will be produced at the National Tube Div.'s McKeesport (Pa.) Works. Other units of the corporation will turn out 25,000 tons at Orange, Tex., and 17,500 tons at Provo, Utah.

A new laboratory for research on tubes is in operation at Youngstown Sheet & Tube Co., Youngstown. It's equipped for making tensile strength, tension compression, brittleness, fatigue failure, corrosion fatigue, and hardness tests. Apparatus includes a metallographic microscope. The lab is also equipped to make experimental melts of steel. Higher pressures in natural gas pipelines, deeper oil well drilling, and other problems are making it necessary to produce higher quality pipe.

Wire . . .

Wire Prices, Pages 133 & 134

Wire order volume hit bottom in July. Bookings will be heavier this month; already a smattering of buying for September delivery is reported.

Tonnagewise, construction requirements lead demand, but inquiries for manufacturers wire are rising, coming from a wide range of consumers, including automotive. Heading wire demand shows spotty improvement; also wire for upholstery-furniture coils. Users of the latter did more hedge buying in June than most consumers.

Inventories of many industrial users are low, and normal improvement in fabricated wire goods manufacturing by Labor Day should raise the pressure for wire deliveries. The wiremakers have been operating with reduced crews and some of them may experience some difficulty meeting a sudden bulge in prompt shipment demand.

Two new items are being added to the product list of the Fairfield (Ala.) Works of U. S. Steel's Tennessee Coal & Iron Div. Facilities are being installed for production of high tensile tying wire and ACSR core wire. The tying wire is used in industrial packaging, the core wire in the manufacture of electrical transmission cables.

Production of tying wire started Aug. 1, and core wire production will start within the next two months. Both items are produced on rolling and drawing facilities used in the manufacture of other types of wire. But some changes and additions to auxiliary equipment were necessary, including a patenting furnace.

Inquiry for spring wire shows improvement. Automotive requirements are increasing and general manufacturing demand is better. It is increasingly apparent that consumers' inventories are at rock bottom in a growing number of cases. Some producers report inquiry being received from customers who have been out of the market for six months or so.

Rails, Cars . . .

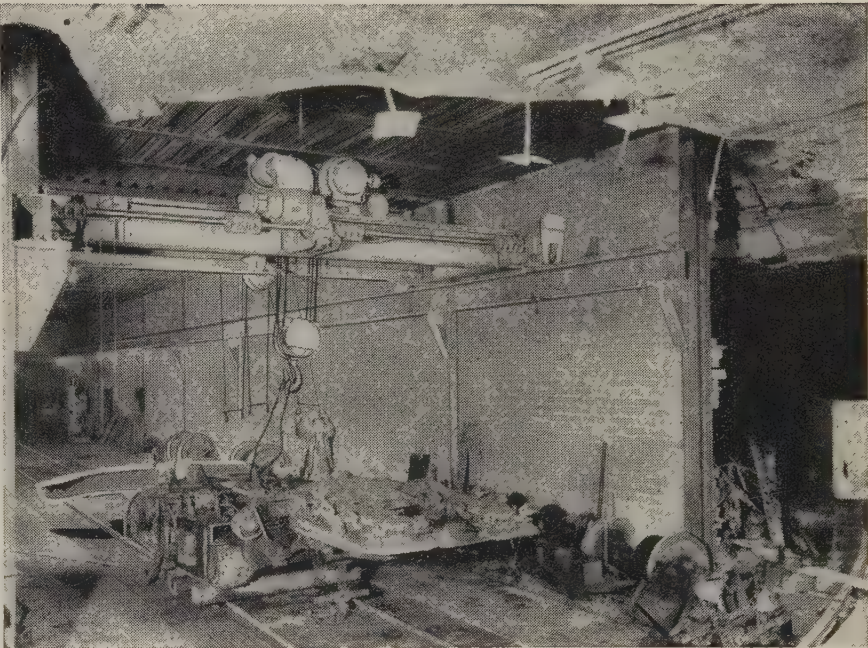
Track Material Prices, Page 134

Not much buying of steel for the construction of railroad freight cars

SHEPARD NILES

CRANE

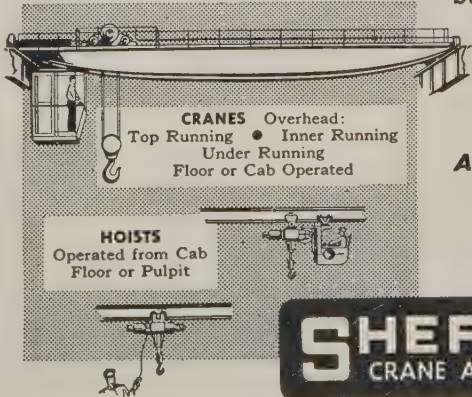
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ESTABLISHED 1866

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FOUNDRY DIVISION

MAIN OFFICE AND MANUFACTURING PLANTS
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is expected the rest of this year. Steelmakers figure the carriers won't make many commitments until Congress completes legislation aimed at aiding the railroad industry.

Electro-Motive Div., General Motors Corp., LaGrange, Ill., will build 192 of the 268 diesel locomotives which the Norfolk & Western has ordered. The remainder went to Alco Products Inc., Schenectady, N. Y. Deliveries will begin in October, with Electro-Motive supplying 12 units each month and Alco four.

Stainless Steel . . .

Stainless Steel Prices, Page 135

"We've had a decided pickup in releases from Detroit," reports a stainless strip producer at Pittsburgh. "Orders started coming in about two weeks before the Middle East flareup, so we're not buying the idea that automotive purchases were moved up on account of the international situation."

Strip orders for August and September are described as "nice" by most makers. It's believed that automotive buying will approximate last year's volume. One producer expects its August bookings to exceed June's. Demand for sheets, bars, and plates continues weak.

Aircraft orders received last week by a Pittsburgh mill were the best it has received from that consuming outlet in months. The pickup in buying is thought to reflect military procurement decisions that were made last fall in the wake of the sputnik launchings.

Four sellers share one of the largest orders of stainless steel in years. The defense project, involving 800,000 lb plates, sheets, shapes, and bars, was reported placed last week.

Plates . . .

Plate Prices, Page 131

Plate order volume is disappointing. There has been little gain in tonnage over the last several weeks, but there will probably be some increase in buying and shipments may be a little more active this month.

Producers of sheared plates do not anticipate much improvement until fall, and any important gain at

that time may depend upon a turn in oil and gas line requirements and a general betterment in heavy industrial equipment needs. Most sellers do not look for much demand on railroad equipment account in the immediate future.

Fabricating shop operations should pick up as mass vacations end. Also, metalworking activities in general should soon begin to rise seasonally and bring out a heavier demand for plates.

So far this year tankwork has been well below 1957's. One eastern fabricator estimates its business is off as much as 50 per cent. Oil storage requirements have been lighter, and there has been a drop in demand for the larger water tanks. Municipal water tank jobs have held up fairly well, but there has been a noticeable falling off in industrial needs. Small tankshops

are fairly busy; some of them report their light plate inventories have been pretty well worked off.

Contrary to the situation a year ago, tankmakers are having no difficulty getting their steel needs filled promptly. Steel supply was their chief problem a year ago; today, it's new orders.

New England fabricating shops are holding back steel orders until they are assured their estimates on pending work are accepted. Then they are asking mills for prompt deliveries. Slightly more tonnage is being figured in the area, but competition among district fabricators is keen, and prospective higher costs of plain material are getting little consideration in estimates.

Direct purchasing for naval shipyards is somewhat heavier for the third quarter, including special treatment and low alloy plates.

Steel Product Shipments—May, 1958

Products	(Net tons; all grades)			—First Five Months—	
	May Shipments			1958	1957
	Carbon	Alloy	Stainless		
Ingots	11,991	9,324	1,417	121,910	223,744
Blooms, etc.	67,365	20,664	1,306	463,130	1,154,152
Tube rounds	445	38	5	3,281	39,732
Skelp	8,029	.....	.....	37,903	78,785
Wire rods	71,448	480	439	322,833	436,728
Structurals	343,503	2,966	16	1,655,819	2,864,659
Steel piling	41,442	22	.....	169,605	248,614
Plates	372,851	28,571	2,214	2,248,248	4,214,947
Rails—standard	68,018	.....	.....	274,652	620,398
Rails—other	4,884	.....	.....	17,101	40,296
Joint bars	2,971	.....	.....	17,911	42,673
Tie plates	7,776	.....	.....	58,568	138,589
Track spikes	3,428	.....	.....	18,678	38,188
Wheels	11,126	74	.....	79,531	164,255
Axles	5,469	5	.....	43,791	91,541
Bars—hot rolled	341,384	71,629	2,466	2,044,971	3,655,113
Bars—reinforcing	191,305	.....	.....	732,875	1,101,554
Bars—cold drawn	60,317	9,307	3,439	387,013	631,282
Tool steel	580	4,980	.....	29,195	48,058
Standard pipe	198,879	105	1	817,663	1,237,238
Oil country goods	50,435	13,733	.....	486,338	1,343,819
Line pipe	268,470	3	.....	1,054,162	1,809,585
Mech. tubing	28,530	11,384	288	216,015	378,413
Pressure tubing	15,734	3,597	1,240	106,697	200,702
Drawn wire	198,592	1,947	1,809	895,343	1,168,218
Nails & staples	40,669	.....	1	170,940	201,445
Barbed wire	7,761	.....	.....	31,058	34,425
Woven fence	21,517	.....	.....	90,601	117,553
Bale ties	12,592	.....	.....	25,713	22,727
Black plate	50,400	.....	.....	256,428	320,458
Tin & terne plate, hot dipped	37,628	.....	.....	179,003	429,136
Tin plate, electrolytic	402,521	.....	.....	2,169,821	2,461,696
Sheets—hot	420,086	14,913	2,015	2,187,111	3,665,612
Sheets—cold	649,348	2,339	9,128	3,575,081	5,143,062
Sheets—galvanized	231,318	.....	.....	989,261	1,052,990
Sheets—other coated	10,457	.....	.....	62,119	87,364
Electrical sheets & strip ..	2,696	30,625	.....	181,514	300,403
Strip—hot rolled	67,765	1,198	554	355,209	662,426
Strip—cold rolled	54,231	2,055	9,241	375,208	530,908
Totals (1958)	4,383,961	229,959	35,579	22,952,300	.....
Totals (1957)	6,482,289	436,561	53,241	.....	27,001,488

Data from the American Iron & Steel Institute.

Ferroalloys . . .

Ferroalloy Prices, Page 138

New Jersey Zinc Co. has developed a new system for producing spiegeleisen from ore of its Ogdensburg, N. J., mine. Plans call for furnaces of commercial size, to be installed at Palmerton, Pa., but no definite date for starting construction has been set. Until the new system is placed in operation, the company's blast furnaces will continue to provide customers with spiegeleisen.

The new system has been developed by the company as a result of extensive tests over the last two years on a furnace based on principles of the company's Sterling process (electric arc furnace). It has not been revealed whether the new process will supplant the company's two blast furnaces, which have an annual rated capacity of 112,000 tons of spiegeleisen.

Pig Iron . . .

Pig Iron Prices, Page 136

August holds promise of some improvement in pig iron demand. Merchant sellers expect a pickup in orders with fewer foundries closed for vacations, but most of them think demand will be relatively sluggish until after Labor Day. Even then, volume may be slow developing. October is normally one of the best months of the year in pig iron sales.

At Buffalo, merchant iron sellers say demand still fails to reflect the improvement that has been taking place in the steel market. Most

foundries in the district are on short workweeks, and their orders for castings are spotty.

Inventories of pig iron at merchant blast furnaces are being whittled down steadily, and some inactive furnaces will be relighted in coming weeks. Last week, Inland Steel Co. relighted its No. 4 blast furnace at Indiana Harbor and is now operating seven of its eight stacks. The Chicago district has 23 active stacks out of a total of 43.

Distributors . . .

Prices, Page 136

Steel warehousemen anticipate an improvement in orders this month as operations at many metalworking plants resume following vacation suspensions. Brisk buying is not expected until fall, though the possibility of higher prices late this summer may stimulate some protective buying over the coming weeks.

Generally, business of the steel service centers is spotty. Plates and shapes are probably moving best. Increasing foreign competition in

steel bars is reported. Lower extras, particularly size, often give foreign bar sellers an advantage.

The uncertain mid-east situation hasn't been reflected to any extent in the distributors' market.

Some price shading has been going on, but improving activity in the over-all steel market is seen to be firming up warehouse quotations.

Structural Shapes . . .

Structural Shape Prices, Page 131

Fabricated structural steel bookings in June were the highest in 13 months, reports the American Institute of Steel Construction. Orders amounted to 286,798 tons, an increase of 62,490 over the preceding month and 16 per cent greater than in the same month last year.

First half (1958) bookings of 1,263,041 tons were 35 per cent lower than those in the corresponding period of 1957.

Shipments amounted to 329,240 tons during June, slightly better than in the previous month and 14 per cent (Please turn to Page 139)

U.S. Imports of Iron Ore--1958

Source	(Gross Tons) March, 1958		—First Quarter, 1958—	
	Tons	Value	Tons	Value
Brazil	61,610	\$396,360	251,325	\$3,603,086
British W. Africa	.....	.....	9,900	69,300
Canada	7,600	108,347	14,760	222,798
Chile	278,898	2,184,028	825,510	6,805,404
Denmark	.....	.....	49	1,099
Dominican Republic	10,500	140,175	21,000	297,675
Iran	.....	.....	2,461	166,881
Liberia	68,260	533,990	192,566	1,634,959
Mexico	15,272	46,015	53,435	161,007
Peru	91,016	695,405	414,718	3,535,051
Philippines	.....	.....	9,850	206,850
Sweden	.....	.....	83,277	1,173,606
United Kingdom	.....	.....	111	11,277
Venezuela	958,678	7,238,293	2,858,361	21,287,902
Totals	1,491,834	11,842,613	4,737,313	39,176,895

DISTRICT INGOT RATES

(Percentage of Capacity Engaged)

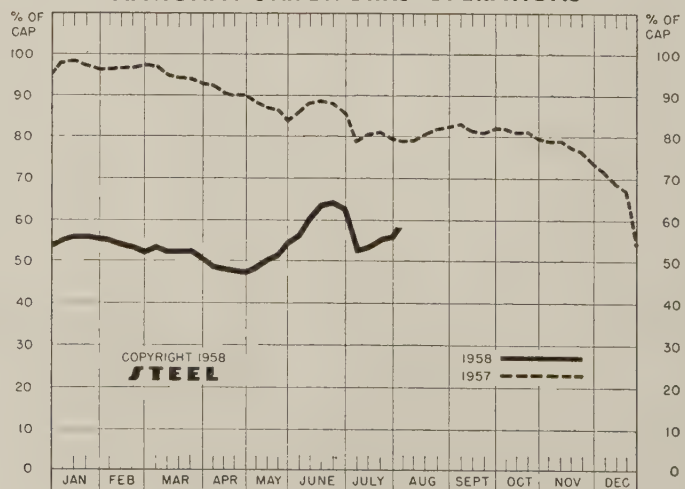
	Week Ended		Same Week	
	Aug. 3	Change	1957	1956
Pittsburgh	51.5	+ 2.5*	79.5	2
Chicago	63.5	+ 1.5*	83.5	8
Eastern	65.0	+ 2.0	85.5	25
Youngstown	53.0	+ 1.0	77	5
Wheeling	73.5	+ 2.5	72	54.5
Cleveland	54.0	+ 4.5*	79	0
Buffalo	50.0	+ 6.0	88	0
Birmingham	52.0	— 1.5	85.5	3.5
Cincinnati	41.0	+ 1.5	67.5	78.5
St. Louis	90.0	— 5.0	87	103
Detroit	64.0	+ 3.0*	90	48
Western	69.0	+ 2.0	99	30
National Rate	59.0	+ 3.0	79	19.5

INGOT PRODUCTION†

	Week Ended		Month	Year
	Aug. 3	Week Ago	Ago	Ago
INDEX	95.7	96.2	85.7	126.6
(1947-49=100)				
NET TONS	1,586	1,546	1,376	2,033
(in thousands)				

*Change from preceding week's revised rate.
†Estimated. ‡American Iron & Steel Institute.
Weekly capacity (net tons): 2,699,173 in 1958; 2,559,490 in 1957; 2,461,893 in 1956.

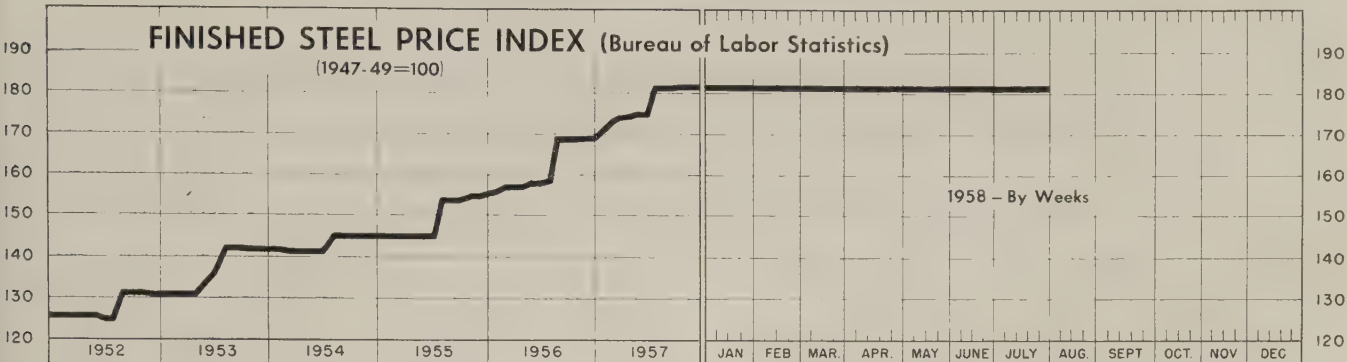
NATIONAL STEELWORKS OPERATIONS



Price Indexes and Composites

FINISHED STEEL PRICE INDEX (Bureau of Labor Statistics)

(1947-49=100)



July 29, 1958

Week Ago

Month Ago

July Avg

Year Ago

181.5†

181.5

181.5

181.5

181.5

†Preliminary

AVERAGE PRICES OF STEEL (Bureau of Labor Statistics)

Week Ended July 29

Prices include mill base prices and typical extras and deductions. Units are 100 lb except where otherwise noted in parentheses. For complete description of the following products and extras and deductions applicable to them, write to STEEL.

Rails, Standard No. 1	\$5.600	Bars, Reinforcing	6.135
Rails, Light, 40 lb	7.067	Bars, C.F., Carbon	10.360
Tie Plates	6.600	Bars, C.F., Alloy	13.875
Axles, Railway	9.825	Bars, C.F., Stainless, 302	
Wheels, Freight Car, 33		(lb)	0.553
in. (per wheel)	60.000	Sheets, H.R., Carbon	6.175
Plates, Carbon	6.150	Sheets, C.R., Carbon	7.075
Structural Shapes	5.942	Sheets, Galvanized	8.270
Bars, Tool Steel, Carbon		Sheets, C.R., Stainless, 302	
(lb)	0.535	(lb)	0.688
Bars, Tool Steel, Alloy, Oil		Sheets, Electrical	12.025
Hardening Die (lb)	0.650	Strip, C.R., Carbon	9.214
Bars, Tool Steel, H.R.,		Strip, C.R., Stainless, 430	
Alloy, High Speed, W		(lb)	0.493
6.75, Cr 4.5, V 2.1, Mo		Strip, H.R., Carbon	6.075
5.5, C 0.60 (lb)	1.355	Pipe, Black, Buttweld (100	
Bars, Tool Steel, H.R.,		ft)	19.814
Alloy, High Speed, W18,		Pipe, Galv., Buttweld (100	
Cr 4, V 1 (lb)	1.850	ft)	23.264
Bars, H.R., Alloy	10.525	Pipe, Line (100 ft)	199.023
Bars, H.R., Stainless, 303		Casing, Oil Well, Carbon	
(lb)	0.525	(100 ft)	194.499
Bars, H.R., Carbon	6.425	Casing, Oil Well, Alloy	
		(100 ft)	304.610

Tubes, Boiler (100 ft) ...	49.130	Black Plate, Canmaking	
Tubing, Mechanical, Car-		Quality (95 lb base box)	7.583
bon (100 ft)	24.953	Wire, Drawn, Carbon ...	10.225
Tubing, Mechanical, Stain-		Wire, Drawn, Stainless,	
less, 304 (100 ft)	205.608	430 (lb)	0.653
Tin Plate, Hot-dipped, 1.25		Bale Ties (bundles)	7.967
lb (95 lb base box)	9.783	Nails, Wire, 8d Common.	9.828
Tin Plate, Electrolytic,		Wire, Barbed (80-rod spool)	8.719
0.25 lb (95 lb base box)	8.483	Woven Wire Fence (20-rod	
		roll)	21.737

STEEL's FINISHED STEEL PRICE INDEX*

	July 30 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Index (1935-39 avg=100) ..	239.15	239.15	239.15	239.15	189.38
Index in cents per lb	6.479	6.479	6.479	6.479	5.130

STEEL's ARITHMETICAL PRICE COMPOSITES*

Finished Steel, NT	\$145.42	\$145.42	\$145.42	\$146.19	\$115.86
No. 2 Fdry Pig Iron, GT..	66.49	66.49	66.49	66.49	56.54
Basic Pig Iron, GT	65.99	65.99	65.99	65.99	56.04
Malleable Pig Iron, GT ...	67.27	67.27	67.27	67.27	57.27
Steelmaking Scrap, GT ...	40.33	37.67	35.67	54.50	44.08

*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54; of arithmetical price composite, STEEL, Sept. 1, 1952, p. 130. †Revised.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED STEEL

	July 30 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bars, H.R., Pittsburgh	5.425	5.425	5.425	5.425	4.15
Bars, H.R., Chicago	5.425	5.425	5.425	5.425	4.15
Bars, H.R., deld. Philadelphia	5.725	5.725	5.725	5.715	5.302
Bars, C.F., Pittsburgh	7.30*	7.30*	7.30*	7.30*	5.20
Shapes, Std., Pittsburgh	5.275	5.275	5.275	5.275	4.10
Shapes, Std., Chicago	5.275	5.275	5.275	5.275	4.10
Shapes, deld., Philadelphia .	5.545	5.545	5.545	5.585	4.38
Plates, Pittsburgh	5.10	5.10	5.10	5.10	4.10
Plates, Chicago	5.10	5.10	5.10	5.10	4.10
Plates, Coatesville, Pa.	5.10	5.10	5.10	5.50	4.35
Plates, Sparrows Point, Md.	5.10	5.10	5.10	5.10	4.10
Plates, Claymont, Del.	5.10	5.10	5.10	5.70	4.55
Sheets, H.R., Pittsburgh	4.925	4.925	4.925	4.925	3.925
Sheets, H.R., Chicago	4.925	4.925	4.925	4.925	3.925
Sheets, C.R., Pittsburgh	6.05	6.05	6.05	6.05	4.775
Sheets, C.R., Chicago	6.05	6.05	6.05	6.05	4.775
Sheets, C.R., Detroit	6.05	6.05	6.05	6.05-6.15	4.975
Sheets, Galv., Pittsburgh	6.60	6.60	6.60	6.60	5.275
Strip, H.R., Pittsburgh	4.925	4.925	4.925	4.925	3.975-4.425
Strip, H.R., Chicago	4.925	4.925	4.925	4.925	3.925
Strip, C.R., Pittsburgh	7.15	7.15	7.15	7.15	5.45-5.95
Strip, C.R., Chicago	7.15	7.15	7.15	7.15	5.70
Strip, C.R., Detroit	7.15	7.15	7.15	7.25	5.45-6.05
Wire, Basic, Pittsburgh	7.65	7.65	7.65	7.65	5.475-5.525
Nails, Wire, Pittsburgh	8.95	8.95	8.95	8.95	6.35-6.55
Tin plate (1.50 lb) box, Pitts.	\$10.30	\$10.30	\$10.30	\$10.30	\$8.95

*Including 0.35c for special quality.

SEMIFINISHED STEEL

Billets, forging, Pitts. (NT)	\$96.00	\$96.00	\$96.00	\$96.00	\$75.50
Wire rods $\frac{1}{2}$ -% Pitts.	6.15	6.15	6.15	6.15	4.525

PIG IRON, Gross Ton

	July 30 1958	Week Ago	Month Ago	Year Ago	5 Yr Ago
Bessemer, Pitts.	\$67.00	\$67.00	\$67.00	\$67.00	\$57.00
Basic, Valley	66.00	66.00	66.00	66.00	56.00
Basic, deld., Phila.	70.41	70.41	70.41	69.88	60.75
No. 2 Fdry, NevilleIsland,Pa.	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, Chicago	66.50	66.50	66.50	66.50	56.50
No. 2 Fdry, deld., Phila. ..	70.91	70.91	70.91	70.38	61.25
No. 2 Fdry, Birm.	62.50	62.50	62.50	62.50	52.88
No. 2 Fdry (Birm.)deld. Cin	70.20	70.20	70.20	70.20	60.43
Malleable, Valley	66.50	66.50	66.50	66.50	56.50
Malleable, Chicago	66.50	66.50	66.50	66.50	56.50
Ferromanganese, net ton ..	245.00†	245.00†	245.00†	255.00†	200.00*

†74-76% Mn, Duquesne, Pa. *Etna, Pa.

SCRAP, Gross Ton (Including broker's commission)

No. 1 Heavy Melt, Pittsburgh	\$41.50	\$37.50	\$35.50	\$56.50	\$44.50
No. 1 Heavy Melt, E. Pa. ..	36.00	35.00	34.00	53.00	44.25
No. 1 Heavy Melt, Chicago.	42.50	40.50	37.50	54.00	43.50
No. 1 Heavy Melt, Valley ..	43.50	41.50	36.50	54.50	45.50
No. 1 Heavy Melt, Cleve. ..	38.50	38.50	33.00	52.50	45.50
No. 1 Heavy Melt, Buffalo..	27.50	27.50	26.50	46.50	43.75
Rails, Rerolling, Chicago ..	61.50	61.50	55.50	79.50	55.50
No. 1 Cast, Chicago	44.50	44.50	41.50	47.50	41.00

COKE, Net Ton

Beehive, Furn., Connlsvl. ..	\$15.25	\$15.25	\$15.25	\$15.25	\$14.75
Beehive, Fdry., Connlsvl. ..	18.25	18.25	18.25	18.25	16.75



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- 3. More income . . .** Family income after taxes is at an all-time high of \$5300—is expected to pass \$7000 by 1975.

4. More production . . . U.S. production *doubles* every 20 years. We will require millions more people to make, sell and distribute our products.

5. More savings . . . Individual savings are at highest level ever—*\$340 billion*—a record amount available for spending.

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(This space contributed as a public service by this magazine.)

Steel Prices

Mill prices as reported to STEEL, July 30, cents per pound except as otherwise noted. *Changes shown in italics.*
Code number following mill points indicate producing company. Key to producers, page 132; footnotes, page 134.

SEMIFINISHED

INGOTS, Carbon, Forging (NT)
Munhall, Pa. U5\$73.50

INGOTS, Alloy (NT)

De.roit S41\$77.00
Farrell, Pa. S377.00
Lowellville, O. S377.00
Midland, Pa. C1877.00
Munhall, Pa. U577.00
Sharon, Pa. S377.00

BILLETS, BLOOMS & SLABS

Carbon, Re-rolling (NT)
Bessemer, Pa. U5\$77.50
Buffalo R277.50
Claifton, Pa. U577.50
Ensley, Ala. T277.50
Fairfield, Ala. T277.50
Fontana, Calif. K188.00
Gary, Ind. U577.50
Johnstown, Pa. B377.50
Lackawanna, N.Y. B277.50
Munhall, Pa. U577.50
Owensboro, Ky. G877.50
S. Chicago, Ill. R2, U577.50
S. Duquesne, Pa. U577.50
Sterling, Ill. N1577.50
Youngstown R277.50

Carbon, Forging (NT)

Bessemer, Pa. U5\$96.00
Buffalo R296.00
Canton, O. R293.50
Claifton, Pa. U596.00
Conshohocken, Pa. A3101.00
Ensley, Ala. T296.00
Fairfield, Ala. T296.00
Fontana, Calif. K1105.50
Gary, Ind. U596.00
Geneva, Utah C1196.00
Houston S5101.00
Johnstown, Pa. B296.00
Lackawanna, N.Y. B296.00
Los Angeles B3105.50
Midland, Pa. C1896.00
Munhall, Pa. U596.00
Owensboro, Ky. G896.00
Seattle B3109.50
Sharon, Pa. S396.00
S. Chicago R2, U5, W1496.00
S. Duquesne, Pa. U596.00
S. San Francisco B3105.50
Warren, O. C1796.00

Alloy, Forging (NT)

Bethlehem, Pa. B2\$114.00
Bridgeport, Conn. C32114.00
Buffalo R2114.00
Canton, O. R2, T7114.00
Conshohocken, Pa. A3121.00
Detroit S41114.00
Economy, Pa. B14114.00
Farrell, Pa. S3114.00
Fontana, Calif. K1135.00
Gary, Ind. U5114.00
Houston S5119.00
Ind. Harbor, Ind. Y1114.00
Johnstown, Pa. B2114.00
Lackawanna, N.Y. B2114.00
Los Angeles B3134.00
Lowellville, O. S3114.00
Massillon, O. R2114.00
Midland, Pa. C18114.00
Munhall, Pa. U5114.00
Owensboro, Ky. G8114.00
Sharon, Pa. S3114.00
S. Chicago R2, U5, W14114.00
S. Duquesne, Pa. U5114.00
Struthers, O. Y1114.00
Warren, O. C17114.00

ROUNDS, SEAMLESS TUBE (NT)

Buffalo R2\$117.50
Canton, O. R2120.00
Cleveland R2117.50
Gary, Ind. U5117.50
S. Chicago, Ill. R2, W14117.50
S. Duquesne, Pa. U5117.50
Warren, O. C17117.50

SKELP

Aliquippa, Pa. J55.075
Munhall, Pa. U54.875
Pittsburgh J55.075
Warren, O. R24.875
Youngstown R2, U54.875

WIRE RODS

Alabama City, Ala. R26.15
Aliquippa, Pa. J56.15
Alton, Ill. L16.35
Buffalo W126.15
Cleveland A76.15
Donora, Pa. A76.15
Fairfield, Ala. T26.15
Houston S56.40
Indiana Harbor, Ind. Y16.15
Johnstown, Pa. B26.15
Joliet, Ill. A76.15
Kansas City, Mo. S56.40
Kokomo, Ind. C166.25
Los Angeles B36.95
Minnequa, Colo. C106.40

Monessen, Pa. P76.15
N. Tonawanda, N.Y. B116.15
Pittsburgh, Calif. C116.95
Portsmouth, O. P126.15
Roebing, N.J. R56.25
S. Chicago, Ill. R26.15
Sparrows Point, Md. B26.25
Sterling, Ill. (1) N156.15
Sterling, Ill. N156.25
Struthers, O. Y16.15
Worcester, Mass. A76.45

STRUCTURALS

Carbon Steel Std. Shapes
Alabama City, Ala. R25.275
Atlanta A115.475
Aliquippa, Pa. J55.275
Bessemer, Ala. T25.275
Bethlehem, Pa. B25.325
Birmingham C155.275
Claifton, Pa. U55.275
Fairfield, Ala. T25.275
Fontana, Calif. K16.075
Gary, Ind. U55.275
Geneva, Utah C115.275
Houston S55.375
Ind. Harbor, Ind. I-25.275
Johnstown, Pa. B25.325
Joliet, Ill. P225.275
Kansas City, Mo. S55.375
Lackawanna, N.Y. B25.325
Los Angeles B35.975
Minnequa, Colo. C105.575
Munhall, Pa. U55.275
Niles, Calif. P15.925
Phoenixville, Pa. P45.325
Portland, Ore. O46.025
Seattle B36.025
S. Chicago, Ill. U5, W145.275
S. San Francisco B35.925
Sterling, Ill. N155.275
Torrance, Calif. C115.975
Weirton, W. Va. W65.275

Wide Flange
Bethlehem, Pa. B25.325
Claifton, Pa. U55.275
Fontana, Calif. K16.225
Indiana Harbor, Ind. I-25.275
Lackawanna, N.Y. B25.325
Munhall, Pa. U55.275
Phoenixville, Pa. P45.325
S. Chicago, Ill. U55.275
Weirton, W. Va. W65.275

Alloy Std. Shapes
Aliquippa, Pa. J56.55
Claifton, Pa. U56.55
Gary, Ind. U56.55
Houston S56.65
Kansas City, Mo. S56.65
Munhall, Pa. U56.55
S. Chicago, Ill. U56.55

H.S., L.A. Std. Shapes
Aliquippa, Pa. J57.75
Bessemer, Ala. T27.75
Bethlehem, Pa. B27.80
Claifton, Pa. U57.75
Fairfield, Ala. T27.75
Fontana, Calif. K18.55
Gary, Ind. U57.75
Geneva, Utah C117.75
Houston S57.85
Ind. Harbor, Ind. I-2, Y17.75
Johnstown, Pa. B27.80
Kansas City, Mo. S57.85
Lackawanna, N.Y. B27.80
Los Angeles B38.45
Munhall, Pa. U57.75
Seattle B38.50
S. Chicago, Ill. U5, W147.75
S. San Francisco B38.40
Struthers, O. Y17.75

H.S., L.A. Wide Flange
Bethlehem, Pa. B27.80
Lackawanna, N.Y. B27.80
Munhall, Pa. U57.75
S. Chicago, Ill. U57.75

PILING

BEARING PILES
Bethlehem, Pa. B25.325
Lackawanna, N.Y. B25.325
Munhall, Pa. U55.275
S. Chicago, Ill. U55.275

STEEL SHEET PILING

Lackawanna, N.Y. B26.225
Munhall, Pa. U56.225
S. Chicago, Ill. U56.225
Weirton, W. Va. W66.225

PLATES

PLATES, Carbon Steel
Alabama City, Ala. R25.10
Aliquippa, Pa. J55.10
Ashland, Ky. (15) A105.10
Atlanta A115.30
Bessemer, Ala. T25.10
Claifton, Pa. U55.10
Claymont, Del. C225.10

Cleveland J5, R25.20
Coatesville, Pa. L75.10
Conshohocken, Pa. A35.10
Ecorse, Mich. G55.10
Fairfield, Ala. T25.10
Fontana, Calif. (30) K15.90
Gary, Ind. U55.10
Geneva, Utah C115.10
Granite City, Ill. G45.20
Harrisburg, Pa. P45.10
Houston S55.20
Ind. Harbor, Ind. I-2, Y15.10
Johnstown, Pa. B25.10
Lackawanna, N.Y. B25.10
Lone Star, Tex. L65.20
Mansfield, O. E65.10
Minnequa, Colo. C105.95
Munhall, Pa. U55.10
Newport, Ky. A25.10
Pittsburgh J55.10
Riverdale, Ill. A15.10
Seattle B36.00
Sharon, Pa. S35.10
S. Chicago, Ill. U5, W145.10
Sparrows Point, Md. B25.10
Sterling, Ill. N155.10
Steubenville, O. W105.10
Warren, O. R25.10
Youngstown U5, Y15.10

PLATES, Carbon Abras. Resist.

Claymont, Del. C226.75
Fontana, Calif. K17.55
Geneva, Utah C116.75
Houston S56.85
Johnstown, Pa. B26.75
Sparrows Point, Md. B26.75

PLATES, Wrought Iron

Economy, Pa. B1413.15

PLATES, H.S., L.A.

Aliquippa, Pa. J57.625
Bessemer, Ala. T27.625
Claifton, Pa. U57.625
Claymont, Del. C227.625
Cleveland J5, R27.625
Conshohocken, Pa. A37.625
Economy, Pa. B147.625
Ecorse, Mich. G57.625
Fairfield, Ala. T27.625
Farrell, Pa. S37.625
Fontana, Calif. (30) K18.425
Gary, Ind. U57.625
Geneva, Utah C117.625
Houston S57.725
Ind. Harbor, Ind. I-2, Y17.625
Johnstown, Pa. B27.625
Munhall, Pa. U57.625
Pittsburgh J57.625
Seattle B38.525
Sharon, Pa. S37.625
S. Chicago, Ill. U5, W147.625
Sparrows Point, Md. B27.625
Warren, O. R27.625
Youngstown U57.625

PLATES, ALLOY

Aliquippa, Pa. J57.20
Claymont, Del. C227.20
Coatesville, Pa. L77.20
Economy, Pa. B147.20
Fontana, Calif. K18.00
Gary, Ind. U57.20
Houston S57.30
Ind. Harbor, Ind. Y17.20
Johnstown, Pa. B27.20
Lowellville, O. S37.20
Munhall, Pa. U57.20
Newport, Ky. A27.20
Pittsburgh J57.20
Seattle B38.10
Sharon, Pa. S37.20
S. Chicago, Ill. U5, W147.20
Sparrows Point, Md. B27.20
Youngstown Y17.20

FLOOR PLATES

Cleveland J56.175
Conshohocken, Pa. A36.175
Ind. Harbor, Ind. I-26.175
Munhall, Pa. U56.175
S. Chicago, Ill. U56.175

PLATES, Ingot Iron

Ashland c.l.(15) A105.35
Ashland l.c.(15) A105.85
Cleveland c.l. R25.85
Warren, O. c.l. R25.85

BARS

BARS, Hot-Rolled Carbon (Merchant Quality)
Ala. City, Ala. (9) R25.425
Aliquippa, Pa. (9) J55.425
Alton, Ill. L15.625
Atlanta (9) A115.625
Bessemer, Ala. (9) T25.425
Birmingham (9) C155.425
Buffalo (9) R25.425
Claifton, Pa. (9) U55.425

Cleveland (9) R25.425
Ecorse, Mich. (9) G55.425
Emeryville, Calif. J76.175
Fairfield, Ala. (9) T25.425
Fairless, Pa. (9) U55.575
Fontana, Calif. (9) K16.125
Gary, Ind. (9) U55.425
Houston (9) S55.675
Ind. Harbor (9) I-2, Y15.425
Johnstown, Pa. (9) B25.425
Joliet, Ill. P225.425
Kansas City, Mo. (9) S55.675
Lackawanna (9) B25.425
Los Angeles (9) B36.125
Midland, Pa. (23) C185.725
Milton, Pa. M185.575
Minnequa, Colo. C105.875
Niles, Calif. P16.125
N. T. Wanda, N.Y. (23) B115.775
Owensboro, Ky. (9) G85.425
Pittsburgh, Calif. (9) C116.125
Pittsburgh (9) J55.425
Portland, Ore. O46.175
Seattle B3, N146.175
S. Ch'c'go (9) R2, U5, W145.425
S. Duquesne, Pa. (9) U55.425
S. San Fran., Calif. (9) B36.175
Sterling, Ill. (1) (9) N155.425
Sterling, Ill. (9) N155.525
Struthers, O. (9) Y15.425
Tonawanda, N.Y. B125.425
Torrance, Calif. (9) C116.125
Youngstown (9) R2, U55.425

BARS, H.R. Ledged Alloy

(Including ledged extra)
Warren, O. C177.475

BARS, Hot-Rolled Alloy

Aliquippa, Pa. J56.475
Bethlehem, Pa. B26.475
Bridgeport, Conn. C326.55
Buffalo R26.475
Canton, O. R2, T76.475
Claifton, Pa. U56.475
Detroit S416.475
Economy, Pa. B146.475
Ecorse, Mich. G56.475
Fairless, Pa. U56.625
Farrell, Pa. S36.475
Fontana, Calif. K17.525
Gary, Ind. U56.475
Houston S56.725
Ind. Harbor, Ind. I-2, Y16.475
Johnstown, Pa. B26.475
Kansas City, Mo. S56.725
Lackawanna, N.Y. B26.475
Lowellville, O. S36.475
Los Angeles B37.525
Massillon, O. R26.475
Midland, Pa. C186.475
Monaca, Pa. S177.30
Newark, N.J. W187.75
New Castle, Pa. (17) B47.30
Pittsburgh J57.30
Plymouth, Mich. P57.55
Putnam, Conn. W187.85
Readville, Mass. C147.85
S. Chicago, Ill. W147.30
Spring City, Pa. K37.75
Struthers, O. Y17.30
Warren, O. C177.30
Willimantic, Conn. J57.80
Waukegan, Ill. A77.30
Youngstown F3, Y17.30

BARS & SMALL SHAPES, H.R.

High-Strength, Low-Alloy
Aliquippa, Pa. J57.925
Bessemer, Ala. T27.925
Bethlehem, Pa. B27.925
Claifton, Pa. U57.925
Cleveland R27.925
Ecorse, Mich. G57.925
Fairfield, Ala. T27.925
Fontana, Calif. K17.925
Gary, Ind. U57.925
Houston S58.175
Ind. Harbor, Ind. Y17.925
Johnstown, Pa. B27.925
Kansas City, Mo. S58.175
Lackawanna, N.Y. B27.925
Los Angeles B38.625
Pittsburgh J57.925
Seattle B38.675
S. Chicago, Ill. U5, W147.925
S. Duquesne, Pa. U57.925
S. San Francisco B38.675
Struthers, O. Y17.925
Youngstown U57.925

BAR SIZE ANGLE; H.R. Carbon

Bethlehem, Pa. (9) B25.575
Houston (9) S55.675
Kansas City, Mo. (9) S55.675
Lackawanna (9) B25.425
Sterling, Ill. N155.525
Sterling, Ill. (1) N155.425
Tonawanda, N.Y. B125.425

BAR SIZE ANGLES; S. Shapes

Aliquippa, Pa. J55.425
Atlanta A116.625
Joliet, Ill. P225.425
Niles, Calif. P16.125
Pittsburgh J55.425

Portland, Ore. O46.175
San Francisco S76.275
Seattle B36.175

BAR SHAPES, Hot-Rolled Alloy

Aliquippa, Pa. J56.55
Claifton, Pa. U56.55
Gary, Ind. U56.55
Houston S56.80
Kansas City, Mo. S56.80
Pittsburgh J56.55
Youngstown U56.55

BARS, C.F., Ledged Alloy

(Including ledged extra)
Ambridge, Pa. W189.925
Beaver Falls, Pa. M129.25
Camden, N.J. P1318.10
Chicago W189.925
Cleveland C209.925
Elyria, O. W89.925
Los Angeles P2, S3011.40
Monaca, Pa. S179.925
Newark, N.J. W1810.10
Spring City, Pa. K310.10
Warren, O. C179.925

*Grade A; add 0.50c for Grade B.

BARS, Cold-Finished Carbon

Ambridge, Pa. W187.30
Beaver Falls, Pa. M12, R27.30
Birmingham C157.90
Buffalo B57.35
Camden, N.J. P137.75
Carnegie, Pa. C127.30
Chicago W187.30
Cleveland A7, C207.30
Detroit B5, P177.50
Detroit S417.30
Donora, Pa. A77.30
Elyria, O. W87.30
Franklin Park, Ill. N57.30
Gary, Ind. R27.30
Green Bay, Wis. F77.30
Hammond, Ind. J5, L27.30
Hartford, Conn. R27.80
Harvey, Ill. B57.30
Los Angeles (49) S308.75
Los Angeles P2, R28.75
Mansfield, Mass. B57.85
Massillon, O. R2, R87.30
Midland, Pa. C187.30
Monaca, Pa. S177.30
Newark, N.J. W187.75
New Castle, Pa. (17) B47.30
Pittsburgh J57.30
Plymouth, Mich. P57.55
Putnam, Conn. W187.85
Readville, Mass. C147.85
S. Chicago, Ill. W147.30
Spring City, Pa. K37.75
Struthers, O. Y17.30
Warren, O. C177.30
Willimantic, Conn. J57.80
Waukegan, Ill. A77.30
Youngstown F3, Y17.30

BARS, Cold-Finished Carbon

(Turned and Ground)
Cumberland, Md. (5) C196.55

BARS, Cold-Finished Alloy

Ambridge, Pa. W188.775
Beaver Falls, Pa. M12, R28.775
Bethlehem, Pa. B28.775
Bridgeport, Conn. C328.925
Buffalo B58.775
Camden, N.J. P138.95
Canton, O. T78.775
Carnegie, Pa. C128.775
Chicago W188.775
Cleveland A7, C208.775
Detroit B5, P178.975
Detroit S418.775
Donora, Pa. A78.775
Elyria, O. W88.775
Franklin Park, Ill. N58.775
Gary, Ind. R28.775
Green Bay, Wis. F78.775
Hammond, Ind. J5, L28.775
Hartford, Conn. R29.075
Harvey, Ill. B58.775
Lackawanna, N.Y. B28.775
Los Angeles P2, S3010.75
Mansfield, Mass. B59.075
Massillon, O. R2, R88.775
Midland, Pa. C188.775
Monaca, Pa. S178.775
Newark, N.J. W188.95
Plymouth, Mich. P58.975
S. Chicago, Ill. W148.775
Spring City, Pa. K38.95
Struthers, O. Y18.775
Warren, O. C178.775
Waukegan, Ill. A78.775
Willimantic, Conn. J59.075
Worcester, Mass. A79.075
Youngstown F3, Y18.775

**BARS, Reinforcing
(To Fabricators)**

Alabama City, Ala. R2	5.425
Atlanta A11	5.425
Birmingham C15	5.425
Buffalo R2	5.425
Cleveland R2	5.425
Ecorse, Mich. G5	5.425
Emeryville, Calif. J7	6.175
Fairfield, Ala. T2	5.425
Fairless, Pa. U5	5.575
Fontana, Calif. K1	6.125
Ft. Worth, Tex. (4) (26) T4	5.875
Gary, Ind. U5	5.425
Houston S5	5.675
Ind. Harbor, Ind. I-2, Y1	5.425
Johnstown, Pa. B2	5.425
Joliet, Ill. P22	5.425
Kansas City, Mo. S5	5.675
Kokomo, Ind. C16	5.525
Lackawanna, N.Y. B2	5.425
Los Angeles B3	6.125
Madison, Ill. L1	5.625
Milton, Pa. M18	5.575
Minneapolis, Colo. C10	5.875
Niles, Calif. P1	6.125
Pittsburgh, Calif. C11	6.125
Pittsburgh J5	5.425
Portland, Ore. O4	6.175
Sand Springs, Okla. S5	5.925
Seattle B3, N14	6.175
S. Chicago, Ill. R2	5.425
S. Duquesne, Pa. U5	5.425
S. San Francisco B3	6.175
Sparrows Point, Md. B2	5.425
Sterling, Ill. (1) N15	5.425
Sterling, Ill. N15	5.525
Struthers, O. Y1	5.425
Tonawanda, N.Y. B12	6.000
Torrance, Calif. C11	6.125
Youngstown R2, U5	5.425

**BARS, Reinforcing
(Fabricated; to Consumers)**

Boston B2, U8	7.65
Chicago U8	6.91
Cleveland U8	6.89
Houston S5	7.35
Johnstown, Pa. B2	7.08
Kansas City, Mo. S5	7.35
Lackawanna, N.Y. B2	6.85
Marion, O. P11	6.70
Newark, N.J. U8	7.55
Philadelphia U8	7.38
Pittsburgh J5, U8	7.10
Sand Springs, Okla. S5	7.60
Seattle B3, N14	7.70
Sparrows Pt., Md. B2	7.08
St. Paul U8	7.92
Williamsport, Pa. S19	7.00

BARS, Wrought Iron

Economy, Pa. (S.R.) B14	14.45
Economy, Pa. (D.R.) B14	18.40
Economy (Staybolt) B14	18.45

RAIL STEEL BARS

Chicago Hts. (3) C2, I-2	5.325
Chicago Hts. (4) (44) I-2	5.425
Chicago Hts. (4) C2	5.425
Franklin, Pa. (3) F5	5.325
Franklin, Pa. (4) F5	5.425
Jersey Shore, Pa. (3) J8	5.30
Marion, O. (3) P11	5.325
Tonawanda (3) B12	5.325
Tonawanda (4) B12	6.00
Williamsport, Pa. (3) S19	5.50

SHEETS**SHEETS, Hot-Rolled Steel
(18 Gage and Heavier)**

Alabama City, Ala. R2	4.925
Allenport, Pa. P7	4.925
Ashland, Ky. (8) A10	4.925
Cleveland J5, R2	4.925
Conshohocken, Pa. A3	4.975
Detroit (8) M1	4.925
Ecorse, Mich. G5	4.925
Fairfield, Ala. T2	4.925
Fairless, Pa. U5	4.975
Fontana, Calif. K1	5.675
Gary, Ind. U5	4.925
Geneva, Utah C11	5.025
Granite City, Ill. (8) G4	5.025
Ind. Harbor, Ind. I-2, Y1	4.925
Irvin, Pa. U5	4.925
Lackawanna, N.Y. B2	4.925
Mansfield, O. E6	4.925
Munhall, Pa. U5	4.925
Newport, Ky. (8) A2	4.925
Niles, O. M21, S3	4.925
Pittsburgh, Calif. C11	5.625
Pittsburgh J5	4.925
Portsmouth, O. P12	4.925
Riverdale, Ill. A1	4.925
Sharon, Pa. S3	4.925
S. Chicago, Ill. W14	4.925
Sparrows Point, Md. B2	4.925
Steubenville, O. W10	4.925
Warren, O. R2	4.925
Weirton, W. Va. W6	4.925
Youngstown U5, Y1	4.925

SHEETS, H.R. (19) Ga. & Lighter

Niles, O. M21	6.05
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Gary, Ind. U5	8.10
Ind. Harbor, Ind. Y1	8.10
Irvin, Pa. U5	8.10
Munhall, Pa. U5	8.10
Newport, Ky. A2	8.10
Youngstown U5, Y1	8.10

SHEETS, H.R. Alloy

Gary, Ind. U5	8.10
Ind. Harbor, Ind. Y1	8.10
Irvin, Pa. U5	8.10
Munhall, Pa. U5	8.10
Newport, Ky. A2	8.10
Youngstown U5, Y1	8.10

**SHEETS, H.R. (14 Ga. & Heavier)
High-Strength, Low-Alloy**

Cleveland J5, R2	7.275
Conshohocken, Pa. A3	7.325
Ecorse, Mich. G5	7.275
Fairfield, Ala. T2	7.275
Fairless, Pa. U5	7.325
Farrell, Pa. S3	7.275
Fontana, Calif. K1	8.025
Gary, Ind. U5	7.275
Ind. Harbor, Ind. I-2, Y1	7.275
Irvin, Pa. U5	7.275
Lackawanna (35) B2	7.275
Munhall, Pa. U5	7.275
Pittsburgh J5	7.275
S. Chicago, Ill. U5, W14	7.275
Sharon, Pa. S3	7.275
Sparrows Point (36) B2	7.275
Warren, O. R2	7.275
Weirton, W. Va. W6	7.275
Youngstown U5, Y1	7.275

**SHEETS, Hot-Rolled Ingot Iron
(18 Gage and Heavier)**

Ashland, Ky. (8) A10	5.175
Cleveland R2	5.675
Warren, O. R2	5.675

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2	6.80
Middletown, O. A10	6.55
Warren, O. R2	6.80

**SHEETS, Cold-Rolled Steel
(Commercial Quality)**

Alabama City, Ala. R2	6.05
Allenport, Pa. P7	6.05
Cleveland J5, R2	6.05
Conshohocken, Pa. A3	6.10
Detroit M1	6.05
Ecorse, Mich. G5	6.05
Fairfield, Ala. T2	6.05
Fairless, Pa. U5	6.10
Follansbee, W. Va. F4	6.05
Gary, Ind. U5	6.05
Granite City, Ill. G4	6.15
Ind. Harbor, Ind. I-2, Y1	6.05
Irvin, Pa. U5	6.05
Lackawanna, N.Y. B2	6.05
Mansfield, O. E6	6.05
Middletown, O. A10	6.05
Newport, Ky. A2	6.05
Pittsburgh, Calif. C11	7.00
Pittsburgh J5	6.05
Portsmouth, O. P12	6.05
Sparrows Point, Md. B2	6.05
Steubenville, O. W10	6.05
Warren, O. R2	6.05
Weirton, W. Va. W6	6.05
Yorkville, O. W10	6.05
Youngstown Y1	6.05

**SHEETS, Cold-Rolled,
High-Strength, Low Alloy**

Cleveland J5, R2	8.975
Ecorse, Mich. G5	8.975
Fairless, Pa. U5	9.025
Fontana, Calif. K1	10.275
Gary, Ind. U5	8.975
Indiana Harbor, Ind. Y1	8.975
Irvin, Pa. U5	8.975
Lackawanna (37) B2	8.975
Pittsburgh J5	8.975
Sparrows Point (38) B2	8.975
Warren, O. R2	8.975
Weirton, W. Va. W6	8.975
Youngstown Y1	8.975

SHEETS, Culvert

	Cu Steel	Cu Fe
Ashland, Ky. A10	6.95	7.20
Canton, O. R2	6.95	7.45
Fairfield, T2	6.95	7.20
Gary, Ind. U5	6.95	7.20
Granite City, Ill. G4	7.05	7.20
Ind. Harbor I-2	6.95	7.20
Irvin, Pa. U5	6.95	7.20
Kokomo, Ind. C16	7.05	7.20
Martins Ferry, W10	6.95	7.20
Pitts., Calif. C11	7.70	...
Pittsburgh J5	6.95	...
Sparrows Pt. B2	6.95	...

SHEETS, Culvert—Pure Iron

Ind. Harbor, Ind. I-2	7.20
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**SHEETS, Galvanized Steel
Hot-Dipped**

Alabama City, Ala. R2	6.60†
Ashland, Ky. A10	6.60†
Canton, O. R2	6.60†
Dover, O. E6	6.60†
Fairfield, Ala. T2	6.60†
Gary, Ind. U5	6.60†
Granite City, Ill. G4	6.70*
Ind. Harbor, Ind. I-2, Y1	6.60†
Irvin, Pa. U5	6.60†
Kokomo, Ind. C16	6.70†
Martins Ferry, O. W10	6.60*
Middletown, O. A10	6.60†
Pittsburgh, Calif. C11	7.35*
Pittsburgh J5	6.60†
Sparrows Pt., Md. B2	6.60†
Warren, O. R2	6.60†
Weirton, W. Va. W6	6.60*

*Continuous and noncontinuous.
†Continuous. ‡Noncontinuous.

SHEETS, Well Casing

Fontana, Calif. K1	7.175
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**SHEETS, Galvanized
High-Strength, Low-Alloy**

Irvin, Pa. U5	9.725
Sparrows Pt. (39) B2	9.725
Pittsburgh J5	9.725

SHEETS, Galvanized Steel

Canton, O. R2	7.00
Irvin, Pa. U5	7.00

**SHEETS, Galvanized Ingot Iron
(Hot-Dipped Continuous)**

Ashland, Ky. A10	6.85
Middletown, O. A10	6.85

SHEETS, Electrogalvanized

Cleveland (28) R2	7.425
Niles, O. (28) R2	7.425
Youngstown J5	7.275
Weirton, W. Va. W6	7.275

SHEETS, Aluminum Coated

Butler, Pa. A10 (type 1)	9.25
Butler, Pa. A10 (type 2)	9.35

SHEETS, Enameling Iron

Ashland, Ky. A10	6.625
Cleveland R2	6.625
Fairfield, Ala. T2	6.625
Gary, Ind. U5	6.625
Granite City, Ill. G4	6.725
Ind. Harbor, Ind. I-2, Y1	6.625
Irvin, Pa. U5	6.625
Middletown, O. A10	6.625
Niles, O. M21, S3	6.625
Youngstown Y1	6.625

BLUED STOCK, 29 Gage

Follansbee, W. Va. F4	8.65
Ind. Harbor, Ind. I-2	8.475
Yorkville, O. W10	8.475

**SHEETS, Long Terme, Steel
(Commercial Quality)**

Beech Bottom, W. Va. W10	7.00
Gary, Ind. U5	7.00
Mansfield, O. E6	7.00
Middletown, O. A10	7.00
Niles, O. M21, S3	7.00
Warren, O. R2	7.00
Weirton, W. Va. W6	7.00

SHEETS, Long Terme, Ingot Iron

Middletown, O. A10	7.40
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Key To Producers

A1 Acme Steel Co.	wire Spencer Steel Div., Colo. Fuel & Iron	J4 Johnson Steel & Wire Co.	P4 Phoenix Iron & Steel Co., Sub. of Barium Steel Corp.	S30 Sierra Drawn Steel Corp.
A2 Acme-Newport Steel Co.	C23 Charter Wire Inc.	J5 Jones & Laughlin Steel	P5 Pilgrim Drawn Steel	S40 Seneca Steel Service
A3 Alan Wood Steel Co.	C24 G. O. Carlson Inc.	J6 Joslyn Mfg. & Supply	P6 Pittsburgh Coke & Chem.	S41 Stainless Steel Div., J&L Steel Corp.
A4 Allegheny Ludlum Steel	C32 Carpenter Steel of N. Eng.	J7 Judson Steel Corp.	P7 Pittsburgh Steel Co.	S42 Southern Elec. Steel Co.
A5 Alloy Metal Wire Div., H. K. Porter Co. Inc.	D2 Detroit Steel Corp.	J8 Jersey Shore Steel Co.	P11 Pollak Steel Co.	T2 Tenn. Coal & Iron Div., U. S. Steel Corp.
A6 American Shim Steel Co.	D3 Dearborn Div., Sharon Steel Corp.	K1 Kaiser Steel Corp.	P12 Portsmouth Div., Detroit Steel Corp.	T3 Tenn. Products & Chemical Corp.
A7 American Steel & Wire Div., U. S. Steel Corp.	D4 Disston Div., H. K. Porter Co. Inc.	K2 Keokuk Electro-Metals	P13 Precision Drawn Steel	T4 Texas Steel Co.
A8 Anchor Drawn Steel Co.	D6 Driver-Harris Co.	K3 Keystone Drawn Steel	P14 Pitts. Screw & Bolt Co.	T5 Thomas Strip Div., Pittsburgh Steel Co.
A9 Angell Nail & Chaplet	D7 Dickson Weatherproof Nail Co.	K4 Keystone Steel & Wire	P15 Pittsburgh Metallurgical	T6 Thompson Wire Co.
A10 Armco Steel Corp.	D8 Damascus Tube Co.	K7 Kenmore Metals Corp.	P16 Page Steel & Wire Div., American Chain & Cable	T7 Timken Roller Bearing
A11 Atlantic Steel Co.	D9 Wilbur B. Driver Co.	L1 Laclede Steel Co.	P17 Plymouth Steel Corp.	T9 Tonawanda Iron Div., Am. Rad. & Stan. San.
B1 Babcock & Wilcox Co.	D18 Eastern Gas & Fuel Assoc.	L2 LaSalle Steel Co.	P19 Pitts. Rolling Mills	T13 Tube Methods Inc.
B2 Bethlehem Steel Co.	E2 Eastern Stainless Steel	L3 Latrobe Steel Co.	P20 Prod. Steel Strip Corp.	T19 Techalloy Co. Inc.
B3 Beth. Pac. Coast Steel	E4 Electro Metallurgical Co.	L6 Lone Star Steel Co.	P22 Phoenix Mfg. Co.	U4 Universal-Cyclops Steel
B4 Blair Strip Steel Co.	E5 Elliott Bros. Steel Co.	L7 Lukens Steel Co.	P24 Phil. Steel & Wire Corp.	U5 United States Steel Corp.
B5 Bliss & Laughlin Inc.	E6 Empire-Reeves Steel Corp.	L8 Leschen Wire Rope Div., H. K. Porter Co. Inc.	R2 Republic Steel Corp.	U6 U. S. Pipe & Foundry
B8 Braeburn Alloy Steel	F2 Firth Sterling Inc.	M1 McLouth Steel Corp.	R3 Rhode Island Steel Corp.	U7 Ubrich Stainless Steels
B9 Brainerd Steel Div., Sharon Steel Corp.	F3 Fitzsimmons Steel Co.	M4 Mahoning Valley Steel	R5 Roebling's Sons, John A.	U8 U. S. Steel Supply Div., U. S. Steel Corp.
B10 E. & G. Brooke, Wickwire Spencer Steel Div., Colo. Fuel & Iron	F4 Follansbee Steel Corp.	M6 Mercer Pipe Div., Sawhill Tubular Products	R6 Rome Strip Steel Co.	V2 Vanadium-Alloys Steel
B11 Buffalo Bolt & Nut Div., Buffalo Eclipse Corp.	F5 Franklin Steel Div., Borg-Warner Corp.	M8 Mid-States Steel & Wire	R8 Reliance Div., Eaton Mfg.	V3 Vulcan-Kidd Steel Div., H. K. Porter Co.
B12 Buffalo Steel Corp.	F6 Fretz-Moon Tube Co.	M12 Moltrop Steel Products	R9 Rome Mfg. Co.	W1 Wallace Barnes Steel Div., Associated Spring Corp.
B14 A. M. Byers Co.	F7 Ft. Howard Steel & Wire	M14 McInnes Steel Co.	R10 Rodney Metals Inc.	W2 Wallingford Steel Co.
B15 J. Bishop & Co.	F8 Ft. Wayne Metals Inc.	M16 Md. Fine & Special Wire	S1 Seneca Wire & Mfg. Co.	W3 Washburn Wire Co.
C1 Calstrip Steel Corp.	G4 Granite City Steel Co.	M17 Metal Forming Corp.	S3 Sharon Steel Corp.	W4 Washington Steel Corp.
C2 Calumet Steel Div., Borg-Warner Corp.	G5 Great Lakes Steel Corp.	M18 Milton Steel Div., Merritt-Chapman & Scott	S4 Sharon Tube Co.	W6 Weirton Steel Co.
C4 Carpenter Steel Co.	G6 Greer Steel Co.	M21 Mallory-Sharon Metals Corp.	S5 Sheffield Div., Armco Steel Corp.	W8 Western Automatic Machine Screw Co.
C9 Colonial Steel Co.	G8 Green River Steel Corp.	M22 Mill Strip Products Co.	S6 Shenango Furnace Co.	W9 Wheeland Tube Co.
C10 Colorado Fuel & Iron	H1 Hanna Furnace Corp.	N1 National-Standard Co.	S7 Simmons Co.	W10 Wheeling Steel Corp.
C11 Columbia-Geneva Steel	H7 Helical Tube Co.	N2 National Supply Co.	S8 Simonds Saw & Steel Co.	W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
C12 Columbia Steel & Shaft.	I-1 Igoo Bros. Inc.	N3 National Tube Div., U. S. Steel Corp.	S12 Spencer Wire Corp.	W13 Wilson Steel & Wire Co.
C13 Columbia Tool Steel Co.	I-2 Inland Steel Co.	N5 Nelsen Steel & Wire Co.	S13 Standard Forgings Corp.	W14 Wisconsin Steel Div., International Harvester
C14 Compressed Steel Shaft.	I-3 Interlake Iron Corp.	N6 New England High Carbon Wire Co.	S14 Standard Tube Co.	W15 Woodward Iron Co.
C15 Connors Steel Div., H. K. Porter Co. Inc.	I-4 Ingersoll Steel Div., Borg-Warner Corp.	N8 Newman-Crosby Steel	S15 Stanley Works	W18 Wyckoff Steel Co.
C16 Continental Steel Corp.	I-6 Ivings Steel Tube Works	N14 Northwest Steel Rolling Mills Inc.	S17 Superior Drawn Steel Co.	Y1 Youngstown Sheet & Tube
C17 Copperweld Steel Co.	I-7 Indiana Steel & Wire Co.	N20 Neville Ferro Alloy Co.	S18 Superior Steel Div., Copperweld Steel Co.	
C18 Crucible Steel Co.	J1 Jackson Iron & Steel Co.	O4 Oregon Steel Mills	S19 Sweet's Steel Co.	
C19 Cumberland Steel Co.	J3 Jessop Steel Co.	P1 Pacific States Steel Corp.	S20 Southern States Steel	
C20 Cuyahoga Steel & Wire		P2 Pacific Tube Co.	S22 Superior Tube Co.	
C22 Claymont Plant, Wick-			S25 Stainless Welded Prod.	
			S26 Specialty Wire Co. Inc.	

STRIP

STRIP, Hot-Rolled Carbon

Ala. City, Ala. (27) R2	4.925
Alpenport, Pa. P7	4.925
Alton, Ill. L1	5.125
Ashland, Ky. (8) A10	4.925
Atlanta A11	4.925
Bessemer, Ala. T2	4.925
Birmingham C15	4.925
Buffalo (27) R2	4.925
Conshohocken, Pa. A3	4.975
Detroit M1	5.025
Ecorse, Mich. G5	4.925
Fairfield, Ala. T2	4.925
Fontana, Calif. K1	5.675
Gary, Ind. U5	4.925
Ind. Harbor, Ind. I-2, Y1	4.925
Johnstown, Pa. (25) B2	4.925
Lackawanna, N.Y. (25) B2	4.925
Los Angeles (25) B3	5.675
Minneapolis, Minn. C10	6.025
Riverdale, Ill. A1	4.925
San Francisco S7	6.35
Seattle (25) B3	5.925
Seattle N14	6.35
Sharon, Pa. S3	4.925
S. Chicago W14	4.925
S. San Francisco (25) B3	5.675
Sparrows Point, Md. B2	4.925
Sterling, Ill. (1) N15	4.925
Sterling, Ill. N15	5.025
Torrance, Calif. C11	5.675
Warren, O. R2	4.925
Weirton, W. Va. W6	4.925
Youngstown U5	4.925

STRIP, Hot-Rolled Alloy

Carnegie, Pa. S18	8.10
Farrell, Pa. S3	8.10
Gary, Ind. U5	8.10
Houston S5	8.35
Ind. Harbor, Ind. Y1	8.10
Kansas City, Mo. S5	8.35
Los Angeles B3	9.30
Lowellville, O. S3	8.10
Newport, Ky. A2	8.10
Sharon, Pa. A2, S3	8.10
S. Chicago, Ill. W14	8.10
Youngstown U5, Y1	8.10

STRIP, Hot-Rolled

High-Strength, Low-Alloy

Bessemer, Ala. T2	7.325
Conshohocken, Pa. A3	7.325
Ecorse, Mich. G5	7.325
Fairfield, Ala. T2	7.325
Farrell, Pa. S3	7.325
Gary, Ind. U5	7.325
Ind. Harbor, Ind. I-2, Y1	7.325
Lackawanna, N.Y. B2	7.325
Los Angeles (25) B3	8.075
Seattle (25) B3	8.325
Sharon, Pa. S3	7.325
S. Chicago, Ill. W14	7.325
S. San Francisco (25) B3	8.075
Sparrows Point, Md. B2	7.325
Warren, O. R2	7.325
Weirton, W. Va. W6	7.325
Youngstown U5, Y1	7.325

STRIP, Hot-Rolled Ingot Iron

Ashland, Ky. (8) A10	5.175
Warren, O. R2	5.675

STRIP, Cold-Rolled Carbon

Anderson, Ind. G6	7.15
Baltimore T6	7.15
Boston T6	7.70
Buffalo S40	7.15
Cleveland A7, J5	7.15
Dearborn, Mich. D3	7.15
Detroit D2, M1, P20	7.15
Dover, O. G6	7.15
Ecorse, Mich. G5	7.15
Evanston, Ill. M22	7.25
Follansbee, W. Va. F4	7.15
Fontana, Calif. K1	9.00
Franklin Park, Ill. T6	7.25
Ind. Harbor, Ind. Y1	7.15
Indianapolis J5	7.30
Los Angeles J5	9.05
Los Angeles C1	9.20
New Bedford, Mass. R10	7.60
New Britain, Conn. S15	7.60
New Castle, Pa. B4, E5	7.15
New Haven, Conn. D2	7.60
New Kensington, Pa. A6	7.15
Pawtucket, R.I. R3	7.80
Pawtucket, R.I. N8	7.70
Philadelphia P24	7.70
Pittsburgh J5	7.15
Riverdale, Ill. A1	7.25
Rome, N.Y. (32) R6	7.15
Sharon, Pa. S3	7.15
Trenton, N.J. (31) R5	8.60
Wallingford, Conn. W2	7.60
Warren, O. R2, T5	7.15
Weirton, W. Va. W6	7.15
Worcester, Mass. A7	7.70
Youngstown J5, Y1	7.15

STRIP, Cold-Rolled Alloy

Boston T6	15.40
Carnegie, Pa. S18	15.05
Cleveland A7	15.05
Dover, O. G6	15.05
Farrell, Pa. S3	15.05
Franklin Park, Ill. T6	15.05
Harrison, N.J. C18	15.05
Indianapolis J5	15.20
Lowellville, O. S3	15.05
Pawtucket, R.I. N8	15.05
Riverdale, Ill. A1	15.40
Sharon, Pa. S3	15.05
Worcester, Mass. A7	15.35
Youngstown J5	15.05

STRIP, Cold-Rolled

High-Strength, Low-Alloy

Cleveland A7	10.45
Dearborn, Mich. D3	10.60
Dover, O. G6	10.45
Ecorse, Mich. G5	10.50
Farrell, Pa. S3	10.50
Ind. Harbor, Ind. Y1	10.85
Sharon, Pa. S3	10.50
Warren, O. R2	10.45

STRIP, Cold-Finished

Spring Steel (Annealed)

Baltimore T6	9.50	10.70	12.90	15.90	18.85
Boston T6	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. W1	9.50	10.70	12.90	15.90	18.85
Carnegie, Pa. S18	8.95	10.40	12.60	15.60	18.55
Cleveland A7	8.95	10.40	12.60	15.60	18.55
Dearborn, Mich. D3	9.05	10.50	12.70	15.70	18.55
Detroit D2	9.05	10.50	12.70	15.70	18.55
Dover, O. G6	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. M22	8.95	10.40	12.60	15.60	18.55
Forstoria, O. S1	10.05	10.40	12.60	15.60	18.55
Franklin Park, Ill. T6	9.05	10.40	12.60	15.60	18.55
Harrison, N.J. C18	9.10	10.55	12.60	15.60	18.55
Indianapolis J5	11.15	12.60	14.80	17.80	18.55
Los Angeles C1	11.15	12.60	14.80	17.80	18.55
Los Angeles J5	11.15	12.60	14.80	17.80	18.55
New Britain, Conn. S15	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. B4, E5	8.95	10.40	12.60	15.60	18.55
New Haven, Conn. D2	9.40	10.70	12.90	15.90	18.85
New Kensington, Pa. A6	8.95	10.40	12.60	15.60	18.55
New York W3	9.50	10.70	12.90	15.90	18.85
Pawtucket, R.I. N8	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. A1	9.05	10.40	12.60	15.60	18.55
Rome, N.Y. (32) R6	8.95	10.40	12.60	15.60	18.55
Sharon, Pa. S3	8.95	10.40	12.60	15.60	18.55
Trenton, N.J. R5	9.40	10.70	12.90	15.90	18.85
Wallingford, Conn. W2	9.40	10.70	12.90	15.90	18.85
Warren, O. T5	8.95	10.40	12.60	15.60	18.55
Worcester, Mass. A7, T6	9.50	10.70	12.90	15.90	18.85
Youngstown J5	8.95	10.40	12.60	15.60	18.55

STRIP, Cold-Finished

Spring Steel (Tempered)

Bristol, Conn. W1	18.10	21.95	26.30
Buffalo W12	18.10	21.95	26.30
Forstoria, O. S1	18.30	22.15	26.30
Franklin Park, Ill. T6	18.45	22.30	26.65
Harrison, N.J. C18	18.10	21.95	26.30
New York W3	18.10	21.95	26.30
Palmer, Mass. W12	18.10	21.95	26.30
Trenton, N.J. R5	18.10	21.95	26.30
Worcester, Mass. A7, T6	18.10	21.95	26.30
Youngstown J5	18.45	22.30	26.65

SILICON STEEL

H.R. SHEETS (22 Ga., cut lengths)

Field	Armature	Electric	Motor	Dynamo
Beech Bottom, W. Va. W10	11.80	12.90	13.95	13.95
Mansfield, O. E6	9.625	11.10	11.80	12.90
Newport, Ky. A2	9.625	11.10	11.80	12.90
Niles, O. M21, S3	9.625	11.10	11.80	12.90
Vandergrift, Pa. U5	9.625	11.10	11.80	12.90
Warren, O. R2	9.625	11.10	11.80	12.90
Zanesville, O. A10	9.625	11.10	11.80	12.90

C.R. COILS & CUT LENGTHS (22 Ga.)

Fully Processed

Field	Armature	Electric	Motor	Dynamo
Beech Bottom, W. Va. W10	11.35	12.05	13.15	14.20
Brackenridge, Pa. A4	9.725	10.95	11.65	12.75
Granite City, Ill. G4	9.625	10.85	11.55	12.65
Indiana Harbor, Ind. I-2	9.625	10.85	11.55	12.65
Mansfield, O. E6	9.625	11.35	12.05	13.15
Vandergrift, Pa. U5	9.625	11.35	12.05	13.15
Warren, O. R2	9.625	11.35	12.05	13.15
Zanesville, O. A10	9.625	11.35	12.05	13.15

H.R. SHEETS (22 Ga., cut lengths)

Field	Armature	Electric	Motor	Dynamo
Beech Bottom, W. Va. W10	15.00	15.55	16.05	17.10
Vandergrift, Pa. U5	15.00	15.55	16.05	17.10
Zanesville, O. A10	15.00	15.55	16.05	17.10

C.R. COILS & CUT LENGTHS (22 Ga.)

T-100	T-90	T-80	T-73	T-66	T-72
Brackenridge, Pa. A4	17.60	19.20	19.70	20.20	15.25†
Butler, Pa. A10	19.20	19.70	20.20	20.20	15.25†
Vandergrift, Pa. U5	16.60	17.60	19.20	19.70	20.20
Warren, O. R2	16.60	17.60	19.20	19.70	20.20

*Semi-processed. †Fully processed only. ‡Coils, annealed, semi-processed 1/2c lower. **Cut lengths, %-cent lower. †Coils only.

Weirton, W. Va. W6	10.50
Youngstown Y1	10.65

STRIP, Cold-Rolled Ingot Iron

Warren, O. R2	7.90
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STRIP, C.R. Electro-galvanized

Cleveland A7	7.15*
Dover, O. G6	7.15*
Evanston, Ill. M22	7.25*
Riverdale, Ill. A1	7.25*
Warren, O. B9, T5	7.15*
Worcester, Mass. A7	7.70*
Youngstown J5	7.15*

*Plus galvanizing extras.

STRIP, Galvanized

(Continuous)

Sharon, Pa. S3	7.275
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TIGHT COOPERAGE HOOP

Atlanta A11	5.65
Riverdale, Ill. A1	5.50
Sharon, Pa. S3	5.35
Youngstown U5	5.35

TIN MILL PRODUCTS

TIN PLATE, Electrolytic (Base Box)

	0.25 lb	0.50 lb	0.75 lb
Alliquippa, Pa. J5	\$8.75	\$9.00	\$9.40
Fairfield, Ala. T2	8.85	9.10	9.50
Fairless, Pa. U5	8.85	9.10	9.50
Fontana, Calif. K1	9.50	9.75	10.15
Gary, Ind. U5	8.75	9.00	9.40
Granite City, Ill. G4	8.85	9.10	9.50
Indiana Harbor, Ind. I-2, Y1	8.75	9.00	9.40
Irvine, Pa. U5	8.75	9.00	9.40
Niles, O. R2	8.75	9.00	9.40
Pittsburg, Calif. C11	9.50	9.75	10.15
Sparrows Point, Md. B2	8.85	9.10	9.50
Weirton, W. Va. W6	8.75	9.00	9.40
Yorkville, O. W10	8.75	9.00	9.40

ELECTROTIN (22-27 Gage; Dollars per 100 lb)

Alliquippa, Pa. J5	7.725	7.925	8.125
Niles, O. R2	7.725	7.925	8.125

TIN PLATE, American 1.25 lb

	1.50 lb	1.50 lb
Alliquippa, Pa. J5	\$10.05	\$10.30
Fairfield, Ala. T2	10.15	10.40
Fairless, Pa. U5	10.15	10.40
Fontana, Calif. K1	10.80	11.05
Gary, Ind. U5	10.05	10.30
Ind. Harb. Y1	10.05	10.30
Pitts., Calif. C11	10.80	11.05
Sp. Ft., Md. B2	10.15	10.40
Weirton, W. Va. W6	10.05	10.30
Yorkville, O. W10	10.05	10.30

BLACK PLATE (Base Box)

Alliquippa, Pa. J5	\$7.85
Fairfield, Ala. T2	7.95
Fairless, Pa. U5	7.95
Fontana, Calif. K1	8.60
Gary, Ind. U5	7.85
Granite City, Ill. G4	7.95
Ind. Harbor, Ind. I-2, Y1	7.85
Irvine, Pa. U5	7.85

WIRE

WIRE, Manufacturers Bright,

Low Carbon

Alabama City, Ala. R2	7.65
Alliquippa, Pa. J5	7.65
Alton, Ill. L1	7.85
Atlanta A11	7.65
Bartonville, Ill. K4	7.75
Buffalo W12	7.65
Chicago W13	7.65
Cleveland A7, C20	7.65
Crawfordsville, Ind. M8	7.75
Donora, Pa. A7	7.65
Duluth A7	7.65
Fairfield, Ala. T2	7.65
Forstoria, O. (24) S1	7.75
Houston S5	7.90
Jacksonville, Fla. M8	8.00
Johnstown, Pa. B2	7.65
Joliet, Ill. A7	7.65
Kansas City, Mo. S5	7.90
Kokomo, Ind. C16	7.75
Los Angeles B3	8.60
Minneapolis, Minn. C10	7.90
Monessen, Pa. P7, P16	7.65
N. Tonawanda, N.Y. B11	7.65
Palmer, Mass. W12	7.95
Pittsburg, Calif. C11	8.90
Portsmouth, O. P12	7.65
Rankin, Pa. A7	7.65
S. Chicago, Ill. R2	7.65
S. San Francisco C10	8.60
Sparrows Point, Md. B2	7.75
Sterling, Ill. (1) N15	7.65
Sterling, Ill. N15	7.75
Struthers, O. Y1	7.65
Waukegan, Ill. A7	7.65
Worcester, Mass. A7	7.95

WIRE, Gal'd., for ACSR

Bartonville, Ill

WIRE, Tire Bead
 Bartonville, Ill. K416.55
 Monessen, Pa. P1616.55
 Roebing, N.J. R517.05

WIRE, Cold-Rolled Flat
 Anderson, Ind. G611.65
 Baltimore T611.95
 Boston T611.95
 Buffalo W1211.65
 Chicago W1311.75
 Cleveland A711.65
 Crawfordville, Ind. M811.65
 Dover, O. G611.65
 Fostoria, O. S111.65
 Franklin Park, Ill. T611.75
 Kokomo, Ind. C1611.65
 Massillon, O. R311.65
 Milwaukee C2311.85
 Monessen, Pa. P7, P1611.65
 Palmer, Mass. W1211.95
 Pawtucket, R.I. N811.95
 Philadelphia P2411.95
 Riverdale, Ill. A111.75
 Rome, N.Y. R611.65
 Sharon, Pa. S311.65
 Trenton, N.J. R511.95
 Warren, O. B911.65
 Worcester, Mass. A7, T611.95

NAILS, Stock
 Alabama City, Ala. R2173
 Aliquippa, Pa. J5173
 Atlanta A11173
 Bartonville, Ill. K4175
 Chicago W13173
 Cleveland A9173
 Crawfordville, Ind. M8175
 Donora, Pa. A7173
 Duluth A7173
 Fairfield, Ala. T2173
 Houston S5178
 Jacksonville, Fla. M8175
 Johnston, Pa. B2173
 Joliet, Ill. A7173
 Kansas City, Mo. S5178
 Kokomo, Ind. C16175
 Minnesota, Colo. C10178
 Monessen, Pa. P7173
 Pittsburgh, Calif. C11192
 Rankin, Pa. A7173
 S. Chicago, Ill. R2173
 Sparrows Pt., Md. B2175
 Sterling, Ill. (7) N15175
 Worcester, Mass. A7179
 (To Wholesalers, per cwt)
 Galveston, Tex. D7\$9.10

NAILS, Cut (100 lb keg)
 To Dealers (33)
 Conshohocken, Pa. A3\$9.80
 Wheeling, W. Va. W109.80

POLISHED STAPLES
 Alabama City, Ala. R2175
 Aliquippa, Pa. J5175
 Atlanta A11177
 Bartonville, Ill. K4177
 Crawfordville, Ind. M8177
 Donora, Pa. A7175
 Duluth A7175
 Fairfield, Ala. T2175
 Houston S5180
 Jacksonville, Fla. M8177
 Johnston, Pa. B2175
 Joliet, Ill. A7175
 Kansas City, Mo. S5180
 Kokomo, Ind. C16177
 Minnesota, Colo. C10180
 Pittsburgh, Calif. C11194
 Rankin, Pa. A7175
 S. Chicago, Ill. R2175
 Sparrows Pt., Md. B2177
 Sterling, Ill. (7) N15175
 Worcester, Mass. A7181

TIE WIRE, Automatic Baler
 (14 1/2 Ga. (per 97 lb Net Box)
 Coil No. 3150
 Alabama City, Ala. R2\$10.26
 Atlanta A1110.36
 Bartonville, Ill. K410.36
 Buffalo W1210.26
 Chicago W1310.26
 Crawfordville, Ind. M810.36
 Donora, Pa. A710.26
 Duluth A710.26
 Fairfield, Ala. T210.26
 Houston S510.51
 Jacksonville, Fla. M810.36
 Johnston, Pa. B210.26
 Joliet, Ill. A710.26
 Kansas City, Mo. S510.51
 Kokomo, Ind. C1610.36
 Los Angeles B311.05
 Minnesota, Colo. C1010.51
 Pittsburgh, Calif. C1111.04
 S. Chicago, Ill. R210.26
 S. San Francisco C1011.04
 Sparrows Pt., Md. B210.36
 Sterling, Ill. (37) N1510.36

Coil No. 6500 Stand.
 Alabama City, Ala. R2\$10.60
 Atlanta A1110.70
 Bartonville, Ill. K410.70
 Buffalo W1210.60
 Chicago W1310.60
 Crawfordville, Ind. M810.70
 Donora, Pa. A710.60
 Duluth A710.60

Fairfield, Ala. T210.60
 Houston S510.85
 Jacksonville, Fla. M810.70
 Johnston, Pa. B210.60
 Joliet, Ill. A710.60
 Kansas City, Mo. S510.85
 Kokomo, Ind. C1610.70
 Los Angeles B311.40
 Minnesota, Colo. C1010.85
 Pittsburgh, Calif. C1111.40
 S. Chicago, Ill. R210.60
 S. San Francisco C1011.40
 Sparrows Pt., Md. B210.70
 Sterling, Ill. (37) N1510.70

Coil No. 6500 Interim
 Alabama City, Ala. R2\$10.65
 Atlanta A1110.75
 Bartonville, Ill. K410.75
 Buffalo W1210.65
 Chicago W1310.65
 Crawfordville, Ind. M810.75
 Donora, Pa. A710.65
 Duluth A710.65
 Fairfield, Ala. T210.65
 Houston S510.90
 Jacksonville, Fla. M810.75
 Johnston, Pa. B210.65
 Joliet, Ill. A710.65
 Kansas City, Mo. S510.90
 Kokomo, Ind. C1610.75
 Los Angeles B311.45
 Minnesota, Colo. C1010.90
 Pittsburgh, Calif. C1111.45
 S. Chicago, Ill. R210.65
 S. San Francisco C1011.45
 Sparrows Pt., Md. B210.75
 Sterling, Ill. (37) N1510.75

BALE TIES, Single Loop
 Alabama City, Ala. R2212
 Atlanta A11214
 Bartonville, Ill. K4214
 Crawfordville, Ind. M8214
 Donora, Pa. A7212
 Duluth A7212
 Fairfield, Ala. T2212
 Houston S5217
 Jacksonville, Fla. M8214
 Joliet, Ill. A7212
 Kansas City, Mo. S5217
 Kokomo, Ind. C16214
 Minnesota, Colo. C10217
 Monessen, Pa. P7214
 Pittsburgh, Calif. C11236
 S. San Francisco C10236
 Sparrows Pt., Md. B2214
 Sterling, Ill. (7) N15214

FENCE POSTS
 Birmingham C15172
 Chicago, Ill. C2, I-2172
 Duluth A7172
 Franklin, Pa. P5172
 Huntington, W. Va. C15172
 Johnston, Pa. B2172
 Marion, O. P11172
 Minnesota, Colo. C10177
 Sterling, Ill. (1) N15172
 Tonawanda, N.Y. B12174

WIRE, Barbed
 Alabama City, Ala. R2193
 Aliquippa, Pa. J5190
 Atlanta A11198
 Bartonville, Ill. K4198
 Crawfordville, Ind. M8198
 Donora, Pa. A7193
 Duluth A7193
 Fairfield, Ala. T2193
 Houston S5198
 Jacksonville, Fla. M8198
 Johnston, Pa. B2196
 Joliet, Ill. A7193
 Kansas City, Mo. S5198
 Kokomo, Ind. C16195
 Minnesota, Colo. C10198
 Monessen, Pa. P7196
 Pittsburgh, Calif. C11213
 Rankin, Pa. A7193
 S. Chicago, Ill. R2193
 S. San Francisco C10213
 Sparrows Pt., Md. B2198
 Sterling, Ill. (7) N15198

WOVEN FENCE, 9-15 Ga.
 Ala. City, Ala. R2187
 Aliquippa, Pa. J5190
 Atlanta A11192
 Bartonville, Ill. K4192
 Crawfordville, Ind. M8192
 Donora, Pa. A7187
 Duluth A7187
 Fairfield, Ala. T2187
 Houston S5192
 Jacksonville, Fla. M8192
 Johnston, Pa. B2190
 Joliet, Ill. A7187
 Kansas City, Mo. S5192
 Kokomo, Ind. C16189
 Minnesota, Colo. C10192
 Pittsburgh, Calif. C11210
 Rankin, Pa. A7187
 S. Chicago, Ill. R2187
 Sterling, Ill. (7) N15192

WIRE (16 gage)
 Ala. City, Ala. R217.15
 Aliquippa, Pa. J517.15
 Bartonville, Ill. K417.15
 Buffalo W1217.15
 Chicago W1317.15
 Crawfordville, Ind. M817.15
 Donora, Pa. A717.15
 Duluth A717.15

Crawdsville M817.25
 Fostoria, O. S117.65
 Houston S517.40
 Jacksonville M817.25
 Johnston, Pa. B217.15
 Kansas City, Mo. S517.40
 Kokomo C1617.25
 Minneapolis C1017.40
 P. M. r. Mass. W1217.45
 Pitts., Calif. C1117.50
 Sparrows Pt. B217.25
 Sterling (37) N1517.25
 Waukegan A717.15
 Worcester A717.45

WIRE, Merchant Quality
 (6 to 8 gage) An'd Galv.
 Ala. City, Ala. R28.65
 Aliquippa J58.65
 Atlanta (48) A118.75
 Bartonville (48) K48.75
 Buffalo W128.65
 Cleveland A78.65
 Crawfordville M88.75
 Donora, Pa. A78.65
 Duluth A78.65
 Fairfield T28.65
 Houston (48) S58.90
 Jacksonville, Fla. M88.75
 Johnston B2 (48)8.65
 Joliet, Ill. A78.65
 Kans. City (48) S58.90
 Kokomo C168.75
 Los Angeles B39.60
 Minnesota C108.90
 Monessen P7 (48)8.65
 Palmer, Mass. W128.95
 Pitts., Calif. C119.60
 Rankin, Pa. A78.65
 S. Chicago R28.65
 S. San Fran. C109.60
 Sparrows Pt. B2 (48)8.75
 Sterling (48) N158.90
 Sterling (1) (48)8.90
 Struthers, O. Y18.65
 Worcester, Mass. A78.95

Based on zinc price of:
 *13.50. †5c. ‡10c. †Less
 than 10c. ††10.50c. **Subject
 to zinc equalization extras.

FASTENERS
 (Base discounts, full con-
 tainer quantity, per cent off
 list, f.o.b. mill)

BOLTS
 Carriage, Machine Bolts
 Full Size Body (cut thread)
 1/2 in. and smaller:
 6 in. and shorter 49.0
 Longer than 6 in. 39.0
 1/2 in. thru 1 in.:
 6 in. and shorter 39.0
 Longer than 6 in. 35.0
 1 1/2 in. and larger:
 All lengths 35.0
 Undersized Body (rolled
 thread)
 1/2 in. and smaller:
 6 in. and shorter 49.0
 Longer than 6 in. 15.0

Carriage, Machine, Lag Bolts
 Hot Galvanized:
 1/2 in. and smaller:
 6 in. and shorter 29.0
 Longer than 6 in. 15.0
 1/2 in. and larger:
 All lengths 12.0
Lag Bolts (all diam.)
 6 in. and shorter 49.0
 Longer than 6 in. 39.0
Plow and Tap Bolts
 1/2 in. and smaller by
 1/2 in. and shorter 49.0
 Larger than 1/2 in. or
 longer than 6 in. 39.0
Blank Bolts 39.0
Step, Elevator, Tire Bolts 49.0

Stove Bolts, Slotted:
 1/2 to 3/4 in. incl.,
 3 in. and shorter 55.0
 1/2 to 1 1/2 in., inclu-
 sive 55.0
NUTS
Reg. & Heavy Square Nuts:
 All sizes 55.5
Square Nuts, Reg. & Heavy, Hot Galvanized:
 All sizes 41.0
Hex Nuts, Reg. & Heavy, Hot Pressed:
 1/2 in. and smaller 60.5
 1/2 in. to 1 in., incl. 55.5
 1 1/2 in. to 1 1/2 in., incl. 58.5
 1 1/2 in. and larger 53.5
Hex Nuts, Reg. & Heavy, Cold Punched:
 1/2 in. and smaller 60.5
 1/2 in. to 1 1/2 in., incl. 55.5
 1 1/2 in. and larger 53.5
Hex Nuts, All Types, Hot Galvanized:
 1/2 in. and smaller 46.5
 1/2 in. to 1 in., incl. 41.5
 1 1/2 in. to 1 1/2 in., incl. 46.5

Hex Nuts, Semifinished,
 Longer than 6 in.:
 1/2 in. and smaller 8.0
 3/4, 1, and 1 1/2 in. diam. + 6.0
High Carbon, Heat Treated:
 6 in. and shorter:
 1/2 in. and smaller 26.0
 3/4, 1, and 1 1/2 in. diam. + 3.0
Flat Head Capscrews:
 3/4 in. and smaller + 76.0
Screws, Square Head, Cup Point, Coarse Thread:
 Through 1 in. diam.:
 6 in. and shorter Net
 Longer than 6 in. + 23

CAP AND SETSCREWS
 (Base discounts, packages,
 per cent off list, f.o.b. mill)
Hex Head Capscrews,
 Coarse or Fine Thread,
 Bright:
 6 in. and shorter:
 1/2 in. and smaller 40.0
 3/4, 1, and 1 1/2 in. diam. 22.0

BOILER TUBES
 Net base c.l. prices, dollars per 100 ft. mill; minimum
 wall thickness, cut lengths 10 to 24 ft. inclusive.

O.D.	B.W. Gage	H.R.	C.D.	H.R.
1	13	.....	25.98	23.54
1 1/4	13	.....	30.78	23.36
1 1/2	13	.....	34.01	25.83
1 3/4	13	.....	40.18	30.51
2	13	.....	45.05	34.20
2 1/4	13	.....	50.75	38.52
2 1/2	12	.....	55.06	41.81
2 3/4	12	.....	60.65	46.05
3	12	.....	65.67	49.88
3 1/2	12	.....	70.03	53.19

RAILWAY MATERIALS

Rails	Standard		Tee Rails	
	No. 1	No. 2	All 60-lb Under	60-lb Under
Bessemer, Pa. U5	5.525	5.425	.....	6.50
Ensley, Ala. T2	5.525	5.425	.....	6.50
Fairfield, Ala. T2	.....	.....	.....	6.50
Gary, Ind. U5	5.525	5.425	.....	6.50
Huntington, W. Va. C15	.....	.....	.....	6.50
Indiana Harbor, Ind. I-2	5.525	5.425	5.475	.....
Johnstown, Pa. B2	.....	.....	.....	(16) 6.50
Lackawanna, N.Y. B2	5.525	5.425	.....	6.50
Minneapolis, Colo. C10	5.525	5.425	.....	7.00
Steeltown, Pa. B2	5.525	5.425	.....	.....
Williamsport, Pa. S19	.....	.....	.....	6.50

TIE PLATES
 Fairfield, Ala. T26.60
 Gary, Ind. U56.60
 Ind. Harbor, Ind. I-26.60
 Lackawanna, N.Y. B26.60
 Minneapolis, Colo. C106.60
 Seattle B36.75
 Steeltown, Pa. B26.60
 Torrance, Calif. C116.75

JOINT BARS
 Bessemer, Pa. U56.975
 Fairfield, Ala. T26.975
 Ind. Harbor, Ind. I-26.975
 Joliet, Ill. U56.975
 Lackawanna, N.Y. B26.975
 Minneapolis, Colo. C106.975
 Steeltown, Pa. B26.975

AXLES
 Ind. Harbor, Ind. S138.775
 Johnstown, Pa. B28.775

Footnotes
 (1) Chicago base.
 (2) Angles, flats, bands.
 (3) Merchant.
 (4) Reinforcing.
 (5) 1 1/2 to under 1 7/16 in.: 1 7/16 to under 1 15/16 in., 6.70c; 1 15/16 to 8 in., inclusive, 7.05c.
 (6) Chicago or Birm. Base.
 (7) Chicago base 2 cols. lower.
 (8) 16 Ga. and heavier.
 (9) Merchant quality; add 0.35c for special quality.
 (10) Pittsburgh base.
 (11) Cleveland & Pitts. base.
 (12) Worcester, Mass. base.
 (13) Add 0.25c for 17 Ga. & heavier.
 (14) Gage 0.143 to 0.249 in.: for gage 0.142 and lighter, 5.80c.
 (15) 3/4" and thinner.
 (16) 40 lb and under.
 (17) Flats only; 0.25 in. & heavier.
 (18) To dealers.
 (19) Chicago & Pitts. base.
 (20) New Haven, Conn. base.
 (21) Deld. San Francisco Bay area.
 (22) Special quality.
 (23) Deduct 0.15c, finer than 15 Ga.
 (24) Bar mill bands.
 (25) Bar mill sizes.
 (26) Bonded.
 (27) Youngstown base.
 (28) Sheared; for universal mill add 0.45c.
 (29) Widths over 1/2 in.; 7.60c. for widths 1/2 in. and under by 0.125 in. and thinner.
 (30) Buffalo base.
 (31) To jobbers, deduct 20c.
 (32) 3.60c for cut lengths.
 (33) 72" and narrower.
 (34) 54" and narrower.
 (35) Chicago base, 10 points lower.
 (36) 14 Ga. & lighter; 48" & narrower.
 (37) 48" and narrower.
 (38) Lighter than 0.035"; 0.035" and heavier, 0.25c higher.
 (39) 9.10c for cut lengths.
 (40) Mill lengths, f.o.b. mill; deld. in mill zone or within switching limits, 5.685c.
 (41) 9-14 Ga.
 (42) To fabricators.
 (43) 6-7 Ga.
 (44) 3 1/2 in. and smaller rounds; 9.30c, over 3 1/2 in. and other shapes.

SEAMLESS STANDARD PIPE, Threaded and Coupled

Size—Inches	2	2½	3	3½	4	5	6			
List Per Ft	37c	58.5c	76.5c	92c	\$1.09	\$1.48	\$1.92			
Pounds Per Ft	3.68	5.82	7.62	9.20	10.89	14.81	19.18			
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*		
Alliquippa, Pa. J5	+9.25	+24.25	+2.75	+19.5	+1.25	+15.5	1	+15.75	3.5	+13.25
Ambridge, Pa. N2	+9.25		+2.75		1.25		1		3.5	
Lorain, O. N3	+9.25	+24.25	+2.75	+19.5	+1.25	+15.5	1	+15.75	3.5	+13.25
Youngstown Y1	+9.25	+24.25	+2.75	+19.5	+1.25	+15.5	1	+15.75	3.5	+13.25

ELECTRIC STANDARD PIPE, Threaded and Coupled

Youngstown R2
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BUTTWELD STANDARD PIPE, Threaded and Coupled

Size—Inches	½		¾		1		1½		2	
List Per Ft	5.5c		6c		8.5c		11.5c		17c	
Pounds Per Ft	0.24		0.42		0.57		0.85		1.13	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Alliquippa, Pa. J5	.....	.....	.....	.....	.....	.....	5.25	+10	8.25	+6
Alton, Ill. L1	.....	.....	.....	.....	.....	.....	3.25	+12	6.25	+8
Benwood, W. Va. W10	4.5	+22	+7.5	+31	+18	+39.5	5.25	+10	8.25	+6
Butler, Pa. F6	4.5	+21	+6.5	+30	+17	+38.5	.....	.....	.....	.....
Etna, Pa. N2	.....	.....	.....	.....	.....	.....	5.25	+10	8.25	+6
Fairless, Pa. N3	.....	.....	.....	.....	.....	.....	3.25	+12	6.25	+8
Fontana, Calif. K1	.....	.....	.....	.....	.....	.....	+8.25	+23.5	+5.25	+19.5
Indiana Harbor, Ind. Y1	.....	.....	.....	.....	.....	.....	4.25	+11	7.25	+7
Lorain, O. N3	.....	.....	.....	.....	.....	.....	5.25	+10	8.25	+6
Sharon, Pa. S4	5.5	+21	+6.5	+30	+17	+38.5	.....	.....	.....	.....
Sharon, Pa. M6	.....	.....	.....	.....	.....	.....	5.25	+10	8.25	+6
Sparrows Pt., Md. B2	3.5	+23	+8.5	+32	+19	+40.5	3.25	+12	6.25	+8
Wheatland, Pa. W9	5.5	+21	+6	+30	+17	+38.5	5.25	+10	8.25	+6
Youngstown R2, Y1	.....	.....	.....	.....	.....	.....	5.25	+10	8.25	+6

Size—Inches	1½		2		2½		3		3½		4	
List Per Ft	27.5c		37c		58.5c		76.5c		92c		\$1.09	
Pounds Per Ft	2.73		3.68		5.82		7.62		9.20		10.89	
	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*	Blk	Galv*
Alliquippa, Pa. J5	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Alton, Ill. L1	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	....	....	....	....
Benwood, W. Va. W10..	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Etna, Pa. N2	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Fairless, Pa. N3	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Fontana, Calif. K1	1.25	+13.25	1.75	+12.75	3.25	+13	3.25	+13	+7.25	+24	+7.25	+24
Indiana Harbor, Ind. Y1	13.75	+0.75	14.25	+0.25	15.75	+0.5	15.25	+0.5	5.25	+11.5	5.25	+11.5
Lorain, O. N3	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sharon, Pa. M6	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	....	....	....	....
Sparrows Pt., Md. B2	12.75	+1.75	13.25	+1.25	14.75	+1.5	14.75	+1.5	4.25	+12.5	4.25	+12.5
Wheatland, Pa. W9	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5
Youngstown R2, Y1	14.75	0.25	15.25	0.75	16.75	0.5	16.75	0.5	6.25	+10.5	6.25	+10.5

*Galvanized pipe discounts based on current price of zinc (10.00c, East St. Louis).

Stainless Steel

Representative prices, cents per pound; subject to current lists of extras

AISI type	—Re-rolling— Ingot Slabs	Forg- ing Billets	H.R. Strip	H.R. Rods; C.F. Wire	Bars; Struc- tural Shapes	Plates	Sheets	C.R. Strip; Flat Wire
01	22.00	27.00	36.00	40.00	42.00	44.25	48.50	45.00
02	23.75	30.25	39.00	40.75	43.00	45.00	49.25	49.25
01	23.25	28.00	37.25	42.00	44.25	46.25	51.25	47.50
02	25.25	31.50	38.00	40.50	42.75	45.00	47.25	52.00
02B	25.50	32.75	40.75	45.75	45.00	47.25	49.50	57.00
03	.....	32.00	41.00	46.00	45.50	48.00	50.00	56.75
04	27.00	33.25	40.50	44.25	45.25	47.75	50.75	55.00
04L	.....	48.25	51.50	53.00	55.50	58.50	63.25	62.75
05	28.50	36.75	42.50	47.50	45.25	47.75	51.25	58.75
08	30.75	38.25	47.25	50.25	52.75	55.75	60.25	63.00
09	39.75	49.50	57.75	64.50	63.75	67.00	71.00	80.50
10	49.75	61.50	78.00	84.25	86.50	91.00	92.75	96.75
14	.....	77.50	.....	86.50	91.00	92.75	99.00	104.25
16	39.75	49.50	62.25	69.25	73.00	76.75	80.75	80.75
16L	.....	55.50	70.00	76.50	80.75	84.50	89.25	88.50
17	48.00	60.00	76.75	88.25	90.75	93.50	101.00	101.00
21	32.25	40.00	47.00	53.50	55.50	59.75	65.50	65.50
30	.....	106.75	.....	95.25	106.75	105.50	108.00	149.25
8-8 CbTa	37.00	46.50	55.75	63.50	61.50	64.75	69.75	79.25
03	.....	28.25	.....	32.00	33.75	35.00	40.25	40.25
05	19.50	25.50	29.75	36.00	33.50	35.25	37.50	46.75
10	16.75	21.50	28.25	31.00	32.00	33.75	35.00	40.25
16	.....	28.75	.....	32.50	34.25	36.00	48.25	48.25
20	26.00	33.50	34.25	41.75	39.25	41.25	45.25	52.00
30	17.00	21.75	28.75	32.00	32.50	34.25	36.00	40.75
30F	.....	29.50	.....	33.00	34.75	36.75	51.75	42.00
31	.....	28.75	.....	42.00	44.25	46.00	56.00	56.00
46	.....	39.25	59.00	44.25	46.50	47.75	70.00	70.00

Stainless Steel Producers Are: Allegheny Ludlum Steel Corp.; American Steel & Wire Div., U. S. Steel Corp.; Anchor Drawn Steel Co., division of Vanadium-Alloys Steel Co.; Armco Steel Corp.; Babcock & Wilcox Co.; Bethlehem Steel Co.; J. Bishop & Co.; C. M. Myers Co.; G. O. Carlson Inc.; Carpenter Steel Co.; Carpenter Steel Co. of New England; Charter Wire Products; Crucible Steel Co. of America; Damascus Tube Co.; Dearborn Div., Sharon Steel Corp.; Wilbur B. Driver Co.; Driver-Harris Co.; Eastern Stainless Steel Corp.; Firth Sterling Inc.; Fort Wayne Metals Inc.; Green River Steel Corp., subsidiary of Jessop Steel Co.; Indiana Steel & Wire Co.; Ingersoll Steel Div., Borg-Warner Corp.; Ellwood Ivins Steel Tube Works Inc.; Jessop Steel Co.; Johnson Steel & Wire Co. Inc.; Stainless Steel Div., Jones & Laughlin Steel Corp.; Joslyn Stainless Steels, division of Joslyn Mfg. & Supply Co.; Latrobe Steel Co.; Lukens Steel Co.; Maryland Fine & Specialty Wire Co. Inc.; McLouth Steel Corp.; Metal Forming Corp.; Midvale-Heppenstall Co.; National Standard Co.; National Tube Div., U. S. Steel Corp.; Pacific Tube Co.; Page Steel & Wire Div., American Chain & Cable Co. Inc.; Pittsburgh Rolling Mills Inc.; Republic Steel Corp.; Riverside-Alloy Metal Div., H. K. Porter Company Inc.; Rodney Metals Inc.; Sawhill Tubular Products Inc.; Sharon Steel Corp.; Timmons Saw & Steel Co.; Specialty Wire Co. Inc.; Standard Tube Co.; Superior Steel Div., Copperweld Steel Co.; Superior Tube Co.; Swepco Tube Corp.; Techalloy Co. Inc.; Timken Roller Bearing Co.; Trent Tube Co., subsidiary of Crucible Steel Co. of America; Tube Methods Inc.; Ulbrich Stainless Steels Inc.; U. S. Steel Corp.; Universal-Cyclops Steel Corp.; Vanadium-Alloys Steel Co.; Wall Tube & Metal Products Co.; Wallingford Steel Co., subsidiary of Allegheny Ludlum Steel Corp.; Washington Steel Corp.

Clad Steel

	Plates— Carbon Base	Sheets— Carbon Base
	5% 10% 15% 20%	20% 10% Both Sides
Stainless	.....	37.50
302	.....	39.75
304	34.70	37.95
304L	36.90	40.55
316	40.35	44.50
316L	45.05	49.35
316 Cb	47.30	53.80
321	36.60	40.05
347	38.25	42.40
405	28.60	29.85
410	28.15	29.55
430	28.30	29.80
Inconel	48.00	59.55
Nickel	41.65	51.95
Nickel, Low Carbon	41.95	52.60
Monel	43.35	53.55
Copper*	.....	46.00

*Deoxidized. Production points: Stainless-clad sheets, New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. C22, Coatesville, Pa. L7, New Castle, Ind. I-4, and Washington, Pa. J3; nickel, inconel, monel-clad plates, Coatesville L7; copper-clad strip, Carnegie, Pa. S18.

Tool Steel

Grade	\$ per lb	Grade	\$ per lb
Regular Carbon	0.305	Cr-Hot Work	0.475
Extra Carbon	0.360	W-Cr Hot Work	0.500
Special Carbon	0.475	V-Cr Hot Work	0.520
Oil Hardening	0.475	Hi-Carbon-Cr	0.925

W	Grade by Analysis (%)	Mo	\$ per lb
20.25	4.25	1.6	12.25
18.25	4.25	1	4.75
18	4	2	9
18	4	2	.....
18	4	1	.....
9	3.5	.....	.....
13.5	4	3	.....
13.75	3.75	2	5
6.4	4.5	1.9	.....
6	4	3	.....
1.5	4	1	.....

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, F2, J3, L3, M14, S8, U4, V2, and V3.

Pig Iron

F.o.b. furnace prices in dollars per gross ton, as reported to STEEL. Minimum delivered prices are approximate.

	Basic	No. 2 Foundry	Malleable	Bessemer		Basic	No. 2 Foundry	Malleable	Bessemer
Birmingham District									
Birmingham R2	62.00	62.50†	66.50	67.00	Duluth I-3	66.00	66.50	66.50	67.00
Birmingham U6		62.50†	66.50	67.00	Erie, Pa. I-3	66.00	66.50	66.50	67.00
Woodward, Ala. W15	62.00**	62.50†	66.50	67.00	Everett, Mass. E1	67.50	68.00	68.50	69.00
Cincinnati, deld.		70.20			Fontana, Calif. K1	75.00	75.50		
Buffalo District									
Buffalo H1, R2	66.00	66.50	67.00	67.50	Geneva, Utah C11	66.00	66.50		
N. Tonawanda, N.Y. T9		66.50	67.00	67.50	Granite City, Ill. G4	67.90	68.40	68.90	
Tonawanda, N.Y. W12	66.00	66.50	67.00	67.50	Ironport, Utah C11	66.00	66.50		
Boston, deld.	77.29	77.79	78.29		Minnequa, Colo. C10	68.00	68.50	69.00	
Rochester, N.Y., deld.	69.02	69.52	70.02		Rockwood, Tenn. T3		62.50†	66.50	
Syracuse, N.Y., deld.	70.12	70.62	71.12		Toledo, Ohio I-3	66.00	66.50	66.50	67.00
Chicago District									
Chicago I-3	66.00	66.50	66.50	67.00	Cincinnati, deld.	72.94	73.44		
S. Chicago, Ill. W14	66.00	66.50	66.50	67.00	**Phos. 0.70-0.90%; Phos. 0.30-0.69%, \$63.				
S. Chicago, Ill. W14	66.00		66.50	67.00	†Phos. 0.70-0.90%; Phos. 0.30-0.69%, \$63.50.				
Milwaukee, deld.	69.02	69.52	69.52	70.02	PIG IRON DIFFERENTIALS				
Muskegon, Mich., deld.		74.52	74.52		Silicon: Add 75 cents per ton for each 0.25% Si or percentage thereof over base grade, 1.75-2.25%, except on low phos. iron on which base is 1.75-2.00%.				
Cleveland District									
Cleveland R2, A7	66.00	66.50	66.50	67.00	Manganese: Add 50 cents per ton for each 0.25% manganese over 1% or portion thereof.				
Akron, Ohio, deld.	69.52	70.02	70.02	70.52	Nickel: Under 0.50% no extra; 0.50-0.74%, inclusive, add \$2 per ton and each additional 0.25%, add \$1 per ton.				
Mid-Atlantic District									
Birdsboro, Pa. B10	68.00	68.50	69.00	69.50	BLAST FURNACE SILVER PIG IRON, Gross Ton				
Chester, Pa. P4	68.00	68.50	69.00		(Base 6.00-6.50% silicon; add \$1 for each 0.50% silicon or portion thereof over the base grade within a range of 6.50 to 11.50%; starting with silicon over 11.50% and \$1.50 per ton for each 0.50% silicon or portion thereof up to 14%; add \$1 for each 0.50% Mn over 1%)				
Swedeland, Pa. A3	68.00	68.50	69.00	69.50	Jackson, Ohio I-3, J1			\$78.00	
New York, deld.		75.50	76.00		Buffalo H1			79.25	
Newark, N.J., deld.	72.69	73.19	73.69	74.19	ELECTRIC FURNACE SILVER IRON, Gross Ton				
Philadelphia, deld.	70.41	70.91	71.41	71.99	(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1.25 for each 0.50% Mn over 1%; \$2 per gross ton premium for 0.045% max P)				
Troy, N.Y. R2	68.00	68.50	69.00	69.50	Calvert City, Ky. P15			\$99.00	
Pittsburgh District									
Neville Island, Pa. P6	66.00	66.50	66.50	67.00	Niagara Falls, N.Y. P15			99.00	
Pittsburgh (N&S sides), Aliquippa, deld.		67.95	67.95	68.48	Keokuk, Iowa Open-hearth & Fdry, \$9 freight allowed K2			103.50	
McKees Rocks, Pa., deld.		67.60	67.60	68.13	Keokuk, Iowa O.H. & Fdry, 12½ lb piglets, 16% Si, max frgt allowed up to \$9, K2			106.50	
Lawrenceville, Homestead, Wilmerding, Monaca, Pa., deld.		68.26	68.26	68.79	LOW PHOSPHORUS PIG IRON, Gross Ton				
Verona, Trafford, Pa., deld.	68.29	68.82	68.82	69.35	Lyles, Tenn. T3 (Phos. 0.035% max)				
Brackenridge, Pa., deld.	68.60	69.10	69.10	69.63	Rockwood, Tenn. T3 (Phos. 0.035% max)			78.50	
Midland, Pa. C18	66.00				Troy, N.Y. R2 (Phos. 0.035% max)			74.00	
Youngstown District									
Hubbard, Ohio Y1			66.50		Philadelphia, deld.			82.67	
Sharpville, Pa. S6	66.00		66.50	67.00	Cleveland A7 (Intermediate) (Phos. 0.036-0.075% max)			71.00	
Youngstown Y1			66.50	67.00	Duluth I-3 (Intermediate) (Phos. 0.036-0.075% max)			71.00	
Mansfield, Ohio, deld.	71.30		71.80	72.30	Erie, Pa. I-3 (Intermediate) (Phos. 0.036-0.075% max)			71.00	
					Neville Island, Pa. P6 (Intermediate) (Phos. 0.036-0.075% max)			71.00	

Steel Service Center Products

Representative prices, per pound, subject to extras, f.o.b. warehouse. City delivery charges are 15 cents per 100 lb except: Denver, Moline, Norfolk, Richmond, Washington, 20 cents; Baltimore, Boston, Los Angeles, New York, Philadelphia, Portland, Spokane, San Francisco, 10 cents; Atlanta, Birmingham, Chattanooga, Houston, Seattle, no charge.

	SHEETS		STRIP		BARS			Standard Structural Shapes	PLATES	
	Hot-Rolled	Cold-Rolled	Gal. 10 Ga.†	Stainless Type 302	H.R. Rounds	C.F. Rds.‡	H.R. Alloy 4140††§		Carbon	Floor
Atlanta	8.59§	9.86§			9.01	10.68		9.05	8.97	10.90
Baltimore	8.00	8.90	9.68		8.65	12.33 #	15.18	8.50	8.65	9.75
Birmingham	8.18	9.45	10.46		8.60	10.57		8.64	8.56	10.70
Boston	9.38	10.44	11.45	53.50	9.73	12.90 #	15.23	9.63	9.72	11.20
Buffalo	8.25	9.00	11.07	55.98	8.80	11.00 #	15.00	8.90	8.90	10.45
Chattanooga	8.35	9.69	9.65		8.77	10.46		8.88	8.80	10.66
Chicago	8.20	9.45	10.10	53.00	8.60	8.80	14.65	8.64	8.56	9.88
Cincinnati	8.34	9.48	10.10	52.43	8.92	11.06	14.86	9.18	8.93	10.21
Cleveland	8.18	9.45	10.20	52.33	8.69	10.80 #	14.74	9.01	8.79	10.11
Dallas	7.50	8.80			7.60	11.01		7.65	8.10	9.35
Denver	9.40	11.84	12.94		9.80	11.19		9.84	9.76	11.08
Detroit	8.43	9.70	10.45	56.50	8.90	9.15	14.91	9.18	8.91	10.13
Erie, Pa.	8.20	9.45	9.95¹⁰		8.75	9.05¹⁰		9.00	8.85	10.10
Houston	7.10	8.40	8.45	54.32	7.20	11.10	13.50	7.25	7.70	8.95
Jackson, Miss.	8.52	9.79			8.94	10.68		8.97	8.90	10.74
Los Angeles	8.25²	10.30²	11.90²	57.60	8.70²	12.10²	16.10	8.50²	8.65²	10.80²
Memphis, Tenn.	8.55	9.80			8.97	11.96 #		9.01	8.93	10.56
Milwaukee	8.33	9.58	10.23		8.73	9.03	14.78	8.85	8.69	10.01
Moline, Ill.	8.55	9.80	10.45		8.95	9.15		8.99	8.91	
New York	8.87	10.13	10.56	53.08	9.57	12.76 #	15.09	9.35	9.43	10.66
Norfolk, Va.	8.40				9.10	12.00		9.40	8.85	10.35
Philadelphia	8.00	8.90	9.92	52.69	8.65	11.51 #	15.01	8.50	8.75	9.75**
Pittsburgh	8.18	9.45	10.45	52.00	8.60	10.80 #	14.65	8.64	8.56	9.88
Portland, Ore.	8.50	11.20	11.55	57.38	8.65	14.50	15.95	8.65	8.30	11.50
Richmond, Va.	8.40		10.40		9.00			9.40	8.85	10.35
St. Louis	8.54	9.79	10.36		8.97	9.41	15.01	9.10	8.93	10.25
St. Paul	8.79	10.04	10.71		9.21	9.66		9.38	9.30	10.49
San Francisco	9.35	10.75	11.00	55.10	9.70	13.00	16.00	9.50	9.60	12.00
Seattle	9.95	11.15	12.20	57.38	10.10	14.05	16.35	9.80	9.70	12.10
South'ton, Conn.	9.07	10.33	10.71		9.74			9.57	9.57	10.91
Spokane	9.95	11.15	12.20	57.38	10.10	14.05	16.35	9.80	9.70	12.10
Washington	8.88				9.56	10.94		9.79	9.26	10.74

*Prices do not include gage extras; †prices include gage and coating extras; ‡includes 35-cent bar quality extras; §42 in. and under; **½ in. and heavier; ††as annealed; ††½ in. to 4 in. wide, inclusive; #1 in. round C-1018.

Base quantities, 2000 to 4999 lb except as noted; cold-rolled strip and cold-finished bars, 2000 lb and over except in Seattle, 2000 to 9999 lb; stainless sheets, 8000 lb except in Chicago, New York, Boston, Seattle, Portland, Ore., 10,000 lb and in San Francisco, 2000 to 4999 lb; hot-rolled products on West Coast, 2000 to 9999 lb, except in Portland, Ore., 1000 to 9999 lb; ‡—30,000 lb; §—1000 to 1999 lb; ¹⁰—2000 lb and over.

Refractories

Fire Clay Brick (per 1000)
High-Heat Duty: Ashland, Grahn, Hayward, Hitchins, Haldeman, Olive Hill, Ky., Athens, Troup, Tex., Beech Creek, Clearfield, Curwensville, Lock Haven, Lumber, Orviston, West Decatur, Winburne, Snow Shoe, Pa., Bessemer, Ala., Farber, Mexico, St. Louis, Vandalia, Mo., Ironton, Oak Hill, Parrall, Portsmouth, Ohio, Ottawa, Ill., Stevens Pottery, Ga., \$135; Salina, Pa., \$140; Niles, Ohio, \$138; Cutler, Utah, \$165.
Super-Duty: Ironton, Ohio, Vandalia, Mo., Olive Hill, Ky., Clearfield, Salina, Winburne, Snow Shoe, Pa., New Savage, Md., St. Louis, \$175; Stevens Pottery, Ga., \$185; Cutler, Utah, \$235.

Silica Brick (per 1000)
Standard: Alexandria, Claysburg, Mt. Union, Sproul, Pa., Ensley, Ala., Pt. Matilda, Pa., Portsmouth, Ohio, Hawstone, Pa., \$150; Warren, Niles, Windham, Ohio, Hays, Latrobe, Morrisville, Pa., \$155; E. Chicago, Ind., Joliet, Rockdale, Ill., \$160; Lehigh, Utah, \$175; Los Angeles, \$180.
Super-Duty: Sproul, Hawstone, Pa., Niles, Warren, Windham, Ohio, Leslie, Md., Athens, Tex., \$157; Morrisville, Hays, Latrobe, Pa., \$160; E. Chicago, Ind., \$167; Curtner, Calif., \$182.

Semisilica Brick (per 1000)
Clearfield, Pa., \$140; Philadelphia, \$137; Woodbridge, N. J., \$135.

Ladle Brick (per 1000)
Dry Pressed: Alsey, Ill., Chester, New Cumberland, W. Va., Freeport, Johnstown, Merrill Station, Vanport, Pa., Mexico, Vandalia, Mo., Wellsville, Irondale, New Salisbury, Ohio, \$96.75; Clearfield, Pa., Portsmouth, Ohio, \$102.

High-Alumina Brick (per 1000)
50 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$235; Danville, Ill., \$238; Philadelphia, Clear-

field, Pa., \$230; Orviston, Snow Shoe, Pa., \$245.
60 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$295; Danville, Ill., \$298; Clearfield, Orviston, Snow Shoe, Pa., \$305; Philadelphia, \$310.
70 Per Cent: St. Louis, Mexico, Vandalia, Mo., \$335; Danville, Ill., \$338; Clearfield, Orviston, Snow Shoe, Pa., \$345; Philadelphia, \$350.

Sleeves (per 1000)
Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, \$188.

Nozzles (per 1000)
Reesdale, Johnstown, Bridgeburg, Pa., St. Louis, \$310.

Runners (per 1000)
Reesdale, Johnstown, Bridgeburg, Pa., \$234.

Dolomite (per net ton)
Domestic, dead-burned, bulk, Billmeyer, Blue Bell, Williams, Plymouth Meeting, York, Pa., Millville, W. Va., Bettsville, Millersville, Martin, Woodville, Gibsonburg, Nario, Ohio, \$16.75; Thornton, McCook, Ill., \$17; Dolly Siding, Bonne Terre, Mo., \$15.60.

Magnesite (per net ton)
Domestic, dead-burned, 1/2 in. grains with fines: Whewelah, Wash., Luning, Nev., \$46; 3/4 in. grains with fines: Baltimore, \$73.

Fluorspar

Metallurgical grades, f.o.b. shipping point in Ill., Ky., net tons, carloads, effective CaF₂ content 72.5%, \$37-\$41; 70%, \$36-\$40; 60%, \$33-\$36.50. Imported, net tons, f.o.b. cars point of entry, duty paid, metallurgical grade: European, \$29-\$31, contract; Mexican, all rail, duty paid, \$25; barge, Brownsville, Tex., \$26.

Ores

Lake Superior Iron Ore
(Prices effective for the 1958 shipping season, gross ton, 51.50% iron natural, rail of vessel, lower lake ports.)
Mesabi bessemer\$11.60
Mesabi nonbessemer 11.45
Old Range bessemer 11.85
Old Range nonbessemer 11.70
Open-hearth lump 12.70
High phos 11.45
The foregoing prices are based on upper lake rail freight rates, lake vessel freight rates, handling and unloading charges, and taxes thereon, which were in effect Jan. 30, 1957, and increases or decreases after that date are absorbed by the seller.

Eastern Local Iron Ore
Cents per unit, deld. E. Pa.
New Jersey, foundry and basic 62-64% concentrates18.00-19.00

Foreign Iron Ore
Cents per unit, c.i.f. Atlantic ports
Swedish basic, 65% 25.00
N. African hematite (spot) nom.
Brazilian iron ore, 68.5% 14.60

Tungsten Ore
Net ton, unit
Foreign wolframite, good commercial quality\$9.50-10.00
Domestic, concentrates f.o.b. milling points17.00-22.00

*Before duty.
Manganese Ore
Mn 46-48%, Indian (export tax included), \$1.15 per long ton unit, c.i.f. U S. ports, duty for buyer's account: other than Indian, nominal; contracts by negotiation.
Chrome Ore
Gross ton, f.o.b. cars New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., Tacoma, Wash.

Indian and Rhodesian
48% 3:1\$46.00-48.00
48% 2.8:1 42.00-44.00
48% no ratio 32.00-34.00

South African Transvaal
48% no ratio\$32.00-34.00
44% no ratio 24.00-25.00

Turkish
48% 3:1\$51.00-55.00

Domestic
Rail nearest seller
18% 3:1 39.00

Molybdenum
Sulfide concentrate, per lb of Mo content, mines, unpacked\$1.23

Antimony Ore
Per short ton unit of Sb content, c.i.f. seaboard
50-55%\$2.25-2.40
60-65% 2.50-3.10

Vanadium Ore
Cents per lb V₂O₅
Domestic 31.00

Metallurgical Coke

Price per net ton
Beehive Ovens
Connellsville, Pa., furnace\$14.75-15.75
Connellsville, Pa., foundry 18.00-18.50
Oven Foundry Coke
Birmingham, ovens\$28.85
Cincinnati, deld. 31.84
Buffalo, ovens 30.50
Camden, N. J., ovens 29.50
Detroit, ovens 30.50
Pontiac, Mich., deld. 32.45
Saginaw, Mich., deld. 34.03
Erie, Pa., ovens 30.50
Everett, Mass., ovens:
New England, deld.31.55*
Indianapolis, ovens 29.75
Ironton, Ohio, ovens 29.00
Cincinnati, deld. 31.84
Kearny, N. J., ovens 29.75
Milwaukee, ovens 30.50
Neville Island (Pittsburgh), Pa., ovens. 29.25
Painesville, Ohio, ovens 30.50
Cleveland, deld. 32.69
Philadelphia, ovens 29.50
St. Louis, ovens 31.50
St. Paul, ovens 33.25
Chicago, deld. 39.29
Swedeland, Pa., ovens 29.50
Terre Haute, Ind., ovens 29.75

*Or within \$4.85 freight zone from works.

Coal Chemicals

Spot, cents per gallon, ovens
Pure benzene 36.00
Toluene, one deg 29.50
Industrial xylene 32.00-34.00
Per ton, bulk, ovens
Ammonium sulfate\$32.00-34.00
Cents per pound, producing point
Phenol: Grade 1, 17.50; Grade 2-3, 15.50; Grade 4, 17.50; Grade 5, 16.50; Grade 6, 14.50.

Metal Powder

(Per pound f.o.b. shipping point in ton lots for minus 100 mesh, except as noted)

Cents

Sponge Iron, Swedish:
deld. east of Mississippi River, ocean bags 23,000 lb and over.. 10.50
F.o.b. Riverton or Camden, N. J., west of Mississippi River. 9.50

Sponge Iron, Domestic,
98 + % Fe:
Deld. east of Mississippi River, 23,000 lb and over 10.50

Electrolytic Iron:
Melting stock, 99.9% Fe, irregular fragments of 1/2 in. x 1.3 in. 28.00

Annealed, 99.5% Fe .. 36.50

Unannealed (99 + % Fe) .. 36.00
Unannealed (99 + % Fe) (minus 325 mesh) .. 59.00

Powder Flakes (minus 16, plus 100 mesh) .. 29.00

Carbonyl Iron:
98.1-99.9%, 3 to 20 microns, depending on grade, 93.00-290.00 in standard 200-lb containers; all minus 200 mesh.

Aluminum:
Atomized, 500-lb drum, freight allowed
Carlots 39.50
Ton lots 41.50
Antimony, 500-lb lots 42.00*
Brass, 5000-lb lots\$31.00-46.70†
Bronze, 5000-lb lots47.20-51.50†
Copper:
Electrolytic14.75*
Reduced14.75*
Lead 7.50*
Manganese:
Minus 35 mesh 64.00
Minus 100 mesh 70.00
Minus 200 mesh 75.00
Nickel, unannealed ... 74.00
Nickel-Silver, 5000-lb lots48.80-53.50†
Phosphor-Copper, 5000-lb lots 59.30
Copper (atomized) 5000-lb lots39.80-48.30†
Silicon 47.50
Solder 7.00*
Stainless Steel, 304 .. \$1.07
Stainless Steel, 316 .. \$1.26
Tin 14.50*
Zinc, 5000-lb lots 17.50-30.70†
Tungsten: Dollars
Melting grade, 99%
60 to 200 mesh, nominal; 14
1000 lb and over .. 3.15
Less than 1000 lb 3.30
Chromium, electrolytic 99.8% Cr min metallic basis 5.00
*Plus cost of metal. †Depending on composition. ‡Depending on mesh.

Electrodes

Threaded with nipple; unboxed, f.o.b. plant

GRAPHITE

—Inches—		Per 100 lb
Diam	Length	
2	24	\$60.75
2 1/2	30	39.25
3	40	37.00
4	40	35.00
5 1/2	40	34.75
6	60	31.50
7	60	28.25
8, 9, 10	60	28.00
12	72	26.75
14	60	26.75
16	72	25.75
17	60	26.25
18	72	26.25
20	72	25.25
24	84	26.00

CARBON

8	60	13.30
10	60	13.00
12	60	12.95
14	60	12.85
14	72	11.95
17	60	11.85
17	72	11.40
20	84	11.40
20	90	11.00
24	72, 84	11.25
24	96	10.95
30	84	11.05
40, 35	110	10.70
40	100	10.70

Imported Steel

(Base per 100 lb, landed, duty paid, based on current ocean rates. Any increase in these rates is for buyer's account. Source of shipment: Western continental European countries.)

	North Atlantic	South Atlantic	Gulf Coast	West Coast
Deformed Bars, Intermediate, ASTM-A 305 ..	\$5.30	\$5.30	\$5.30	\$5.50
Bar Size Angles ..	5.05	5.05	5.05	5.42
Structural Angles ..	5.05	5.05	5.05	5.42
I-Beams ..	5.11	5.11	5.11	5.45
Channels ..	5.11	5.11	5.11	5.45
Plates (basic bessemer) ..	6.62	6.62	6.62	6.94
Sheets, H.R.	8.20	8.20	8.20	8.50
Sheets, C.R. (drawing quality) ..	8.75	8.75	8.75	9.12
Furring Channels, C.R., 1000 ft, 1/4 x 0.30 lb per ft ..	25.71	25.59	25.59	26.46
Barbed Wire (†) ..	6.65	6.65	6.65	7.00
Merchant Bars ..	6.07	6.07	6.07	6.43
Hot-Rolled Bands ..	7.15	7.15	7.15	7.55
Wire Rods, Thomas Commercial No. 5 ..	6.50	6.50	6.50	6.90
Wire Rods, O.H. Cold Heading Quality No. 5 ..	7.07	7.07	7.07	7.47
Bright Common Wire Nails (\$) ..	8.02	8.02	7.92	8.20

†Per 82 lb net reel. \$Per 100-lb kegs, 20d nails and heavier.

Ferroalloys

MANGANESE ALLOYS

Spiegeleisen: Carlot, per gross ton, Palmerton, Neville Island, Pa. 21-23% Mn, \$105; 19-21% Mn, 1-3% Si, \$102.50; 16-19% Mn, \$100.50.

Standard Ferromanganese: (Mn 74-76%, C 7% approx) base price per net ton, \$245. Johnstown, Duquesne, Sheridan, Neville Island, Pa.; Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Add or subtract \$2 for each 1% or fraction thereof of contained manganese over 76% or under 74%, respectively. (Mn 79-81%). Lump \$253 per net ton, f.o.b. Anaconda or Great Falls, Mont. Add \$2.60 for each 1% above 81%; subtract \$2.60 for each 1% below 79%, fractions in proportion to nearest 0.1%.

High-Grade Low-Carbon Ferromanganese: (Mn 85-90%). Carload, lump, bulk, max 0.07% C, 35.1c per lb of contained Mn, carload packed 36.4c, ton lots 37.9c, less ton 39.1c. Delivered. Deduct 1.5c for max 0.15% C grade from above prices, 3c for max 0.03% C, 3.5c for max 0.5% C, and 6.5c for max 75% C—max 7% Si. **Special Grade:** (Mn 90% min, C 0.07% max, P 0.06% max). Add 2.05c to the above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.25-1.5%, Si 1.5% max). Carload, lump, bulk, 25.5c per lb of contained Mn, packed, carload 26.8c, ton lot 28.4c, less ton 29.6c. Delivered. Spot, add 0.25c.

Manganese Metal: 2" x D (Mn 95.5% min, Fe 2% max, Si 1% max, C 0.2%). Carload, lump, bulk, 45c per lb of metal; packed, 45.75c; ton lot 47.25c; less ton lot 49.25c. Delivered. Spot, add 2c.

Electrolytic Manganese Metal: Min carload, 34c; 2000 lb to min carload, 36c; less ton, 38c; 50 lb cans, add 0.5c per lb. Premium for hydrogen-removed metal, 0.75c per lb. Prices are f.o.b. cars, Knoxville, Tenn., freight allowed to St. Louis or any point east of Mississippi; or f.o.b. Marietta, O., freight allowed.

Silicomanganese: (Mn 65-68%). Carload, lump, bulk 1.50% C grade, 18-20% Si, 12.8c per lb of alloy. Packed, c.l. 14c, ton 14.45c, less ton 15.45c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. For 2% C grade, Si 15-17%, deduct 0.2% from above prices. For 3% C grade, Si 12-14.5%, deduct 0.4c from above prices. Spot, add 0.25c.

TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max). Contract, ton lot, 2" x D, \$1.50 per lb of contained Ti; less ton \$1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton lot \$1.35, less ton \$1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract c.l. \$240 per ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi River and north of Baltimore and St. Louis. Spot, \$245.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4%). Contract c.l. \$290 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed. Spot, \$295.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l. lump, bulk 28.75c per lb of contained Cr; c.l. packed 30.30c, ton lot 32.05c; less ton 33.45c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: Cr 63-66% (Simplex), carload, lump, bulk, C 0.025% max, 38.75c per lb contained Cr; 0.010% max, 37.75c. Ton lot, add 3.5c; less ton, add 5.2c. Delivered.

Cr 67-71%, carload, lump, bulk, C 0.02% max, 41.00c per lb contained Cr; 0.025% max, 39.75c; 0.05% max, 39.00c; 0.10% max, 38.50c; 0.20% max, 38.25c; 0.50% max, 38.00c; 1.0% max, 37.75c; 1.5% max, 37.50c; 2.0% max, 37.25c. Ton lot, add 3.4c; less ton lot, add 5.1c. Delivered.

Foundry Ferrochrome, High-Carbon: (Cr 61-66%, C 5-7%, Si 7-10%). Contract, c.l., 2 in. x D, bulk 30.05c per lb of contained Cr. Packed, c.l. 31.65c, ton 33.45c, less ton 34.95c. Delivered. Spot, add 0.25c.

Foundry Ferrosilicon Chrome: (Cr 50-54%, Si 28-32%, C 1.25% max). Contract, carload packed, 8M x D, 21.25c per lb of alloy, ton lot 22.50c; less ton lot 23.70c. Delivered. Spot, add 0.25c.

Ferrochrome-Silicon: Cr 39-41%, Si 42-45%, C 0.05% max or Cr 33-36%, Si 45-48%, C 0.05% max. Carload, lump, bulk, 3" x down and 2" x down, 27.50c per lb contained Cr, 14.20c per lb contained Si, 0.75" x down, 28.65c per lb contained Cr, 14.20c per lb contained Si. Delivered.

Chromium Metal, Electrolytic: Commercial grade (Cr 99.8% min, metallic basis, Fe 0.2% max). Contract, carlot, packed 2" x D plate (about 1/8" thick) \$1.29 per lb, ton lot \$1.31, less ton lot \$1.33. Delivered. Spot, add 5c.

VANADIUM ALLOYS

Ferrovandium: Open-hearth grade (V 50-55%, Si 8% max, C 3% max). Contract, any quantity, \$3.20 per lb of contained V. Delivered. Spot, add 10c. **Special Grade:** (V 50-55% or 70-75%, Si 2% max, C 0.5% max) \$3.30. **High Speed Grade:** (V 50-55%, or 70-75%, Si 1.50% max, C 0.20% max) \$3.40.

Grainal: Vanadium Grainal No. 1 \$1.05 per lb; No. 79, 50c, freight allowed.

Vanadium Oxide: Contract less carload lot, packed, \$1.38 per lb contained V₂O₅, freight allowed. Spot, add 5c.

SILICON ALLOYS

50% Ferrosilicon: Contract, carload, lump, bulk, 14.20c per lb of contained Si. Packed c.l. 16.70c, ton lot 18.15c, less ton 19.80c, f.o.b. Alloy, W. Va.; Ashtabula, Marietta, O.; Sheffield, Ala.; Portland, Oreg. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max). Add 1.45c to 50% ferrosilicon prices.

65% Ferrosilicon: Contract, carload, lump, bulk, 15.25c per lb contained silicon. Packed, c.l. 17.25c, ton lot 19.05c, less ton 20.4c. Delivered. Spot, add 0.35c.

75% Ferrosilicon: Contract, carload, lump, bulk, 16.4c per lb of contained Si. Packed, c.l. 18.30c, ton lot 19.95c, less ton 21.2c. Delivered. Spot, add 0.3c.

90% Ferrosilicon: Contract, carload, lump, bulk, 19.5c per lb of contained Si. Packed, c.l. 21.15c, ton lot 22.55c, less ton 23.6c. Delivered. Spot, add 0.25c.

Silicon Metal: (98% min Si, 1.00% max Fe, 0.07% max Ca). C.l. lump, bulk, 21.00c per lb of Si. Packed, c.l. 22.65c, ton lot 23.95c, less ton 24.95c. Add 0.5c for max 0.03% Ca grade. Add 0.5c for 0.50% Fe grade analyzing min 98.25% min Si.

Alsifer: (Approx 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 9.60c per lb of alloy; ton lot, packed, 10.95c.

ZIRCONIUM ALLOYS

12-15% Zirconium Alloy: (Zr 12-15%, Si 39-43%, C 0.20% max). Contract, c.l. lump, bulk, 9.25c per lb of alloy. Packed, c.l. 10.45c, ton lot 11.6c, less ton 12.45c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max). Contract, carload, lump, packed 27.25c per lb of alloy, ton lot 28.4c, less ton 29.65c. Freight allowed. Spot, add 0.25c.

BORON ALLOYS

Ferroboron: (B 17.50% min, Si 1.50% max, Al 0.50% max, C 0.50% max). Contract, 100 lb or more 1" x D, \$1.20 per lb of alloy; less than 100 lb \$1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices, 100 lb and over are as follows: Grade A (10-14% B) 85c per lb; Grade B (14-18% B) \$1.20; Grade C (19% min B) \$1.50.

Borasil: (3 to 4% B, 40 to 45% Si). Carload, bulk, lump, or 3" x D, \$5.25 per lb of contained B. Packed, carload \$5.40, ton to c.l. \$5.50, less ton \$5.60. Delivered.

Carbortam: (B 1 to 2%). Contract, lump, carload \$320 per ton, f.o.b. Suspension Bridge, N. Y., freight allowed same as high-carbon ferrotitanium.

CALCIUM ALLOYS

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%). Contract, carload, lump, bulk 23c per lb of alloy, carload packed 24.25c, ton lot 26.15c, less ton 27.15c. Delivered. Spot, add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.5-3%). Contract, carload, lump, bulk 24c per lb of alloy, carload packed 25.65c, ton lot 27.95c, less ton 29.45c. Delivered. Spot, add 0.25c.

BRIQUETTED ALLOYS

Chromium Briquets: (Weighing approx 3 1/2 lb each and containing 2 lb of Cr). Contract, carload, bulk 19.60c per lb of briquet, carload packed in box pallets 19.80c, in bags 20.70c; 3000 lb to c.l. in box pallets 21.00c; 2000 lb to c.l. in bags 21.90c; less than 2000 lb in bags 22.80c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx 3 lb and containing 2 lb of Mn). Contract, carload, bulk 14.8c per lb of briquet; c.l., packed, pallets 15c, bags 16c; 3000 lb to c.l., pallets 16.2c; 2000 lb to c.l., bags, 17.2c; less ton 18.1c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx 3 1/2 lb and containing 2 lb of Mn and approx 1/2 lb of Si). Contract, c.l. bulk 15.1c per lb of briquet; c.l. packed, pallets, 15.3c; bags 16.3c, 3000 lb to c.l., pallets, 16.5c; 2000 lb to c.l., bags 17.5c; less ton 18.4c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx 5 lb and containing 2 lb of Si). Contract, carload, bulk 7.7c per lb of briquet; packed, pallets, 7.9c; bags 8.9c; 3000 lb to c.l., pallets 9.5c; 2000 lb to c.l., bags 10.5c; less ton 11.4c. Delivered. Spot, add 0.25c. (Small size—weighing approx 2 1/2 lb and containing 1 lb of Si). Carload, bulk 7.85c. Packed, pallets 8.05c; bags 9.05c; 3000 lb to c.l., pallets 9.65c; 2000 lb to c.l., bags, 10.65c; less ton 11.55c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdenic-Oxide Briquets: (Containing 2 1/2 lb of Mo each). \$1.41 per pound of Mo contained, f.o.b. Langeloth, Pa.

TUNGSTEN ALLOYS

Ferrotungsten: (70-80%), 5000 lb W or more \$2.15 per lb (nominal) of contained W. Delivered.

OTHER FERROALLOYS

Ferrocolumbium: (Cb 50-60%, Si 8% max, C 0.4% max). Ton lots 2" x D, \$4 per lb of contained Cb; less ton lots, \$4.05 (nominal). Delivered.

Ferrotantalum Columbium: (Cb 40% approx, Ta 20% approx, and Cb plus Ta 60% min, C 0.30% max). Ton lot 2" x D, \$3.80 per lb of contained Cb plus Ta, delivered; less ton lot \$3.85 (nominal).

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, c.l. packed 1/2-in. x 12 M 20.00c per lb of alloy, ton lot 21.15c, less ton 22.40c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 20c per lb of alloy, ton lot 21.15c; less ton lot 22.4c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed 18.45c per lb of alloy; ton lot 19.95c; less ton lot 21.20c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx 20% each Si, Mn, Al; bal Fe). Lump, carload, bulk 18.50c. Packed c.l. 19.50c, 2000 lb to c.l. 20.50c; less than 2000 lb 21c per lb of alloy. Delivered.

Ferrophosphorus: (23-25% based on 24% P content with unitage of \$5 for each 1% of P above or below the base); carload, bulk, f.o.b. sellers' works. Mt. Pleasant, Siglo, Tenn., \$120 per gross ton.

Ferromolybdenum: (55-75%). Per lb of contained Mo, in 200-lb container, f.o.b. Langeloth and Washington, Pa. \$1.68 in all sizes except powdered which is \$1.74.

Technical Molybdenic-Oxide: Per lb of contained Mo, in cans, \$1.39; in bags, \$1.38, f.o.b. Langeloth and Washington, Pa.

(Continued from Page 128)

cent below the total in the same month last year. The total for the first six months this year was 1,916,910 tons, down noticeably from the 2,075,718 tons in 1957.

Order backlogs as of June 30 were 2,190,943 tons. More than half this total, or 1,266,743 tons, were scheduled for fabrication during the four months ending Oct. 31.

While industrial construction continues light, public work is active, and a fair amount of commercial inquiry is before fabricators.

Small and medium sized fabricating shops report their backlogs are being supported by such public work as schools and a fair run of commercial building demand.

In New England, though, increased activity is largely due to bridge inquiry, and most area fabricators are estimating bridge jobs, including some shops that usually show little interest in such work.

Practically all shops hold fair order backlogs. While they are far short of last summer's tonnage, they are heavy enough to assure rea-

(Please turn to Page 148)

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

- 23,000 tons, House of Representatives Office Building, Washington, D. C., to Bethlehem Steel Co., Bethlehem, Pa. (noted in previous issue as low bidder).
4000 tons, Woodrow Wilson Memorial Bridge, Washington, D. C., to Phoenix Bridge Co., Phoenixville, Pa.
1370 tons, state bridge over the Pocomake River, Somerset County, Maryland, to Bethlehem Steel Co., Bethlehem, Pa.
300 tons, Idaho highway bridge, Cassia and Minidoka counties, to unstated fabricator; general contract to W. R. Cahoon Construction Co., Pocatello, Idaho, low at \$436,811.

STRUCTURAL STEEL PENDING

- 1400 tons, State Employment Security Building, Baltimore, Blake Construction Co., Washington, general contractor.
600 tons, powerhouse extension and switchyard, Ft. Peck project, Montana; bids to U. S. Engineer, Garrison District, Riverdale, North Dakota, Oct. 14.
292 tons, state bridgework, Delaware County, Pennsylvania; bids Aug. 15; 143 tons of reinforcing bars also required.
95 tons, also 85 tons of used steel, government furnished; six Alaska Copper River highway spans; bids to the Bureau of Public Roads, Juneau, Alaska, Aug. 12.

REINFORCING BARS . . .

REINFORCING BARS PLACED

- 1000 tons, Mercer generating plant, Hamilton Township, New Jersey, for the Public Service Co. of New Jersey, Newark, N. J., to the U. S. Steel Products Co., Trenton, N. J.
200 tons, dormitory, Swarthmore College, Swarthmore, Pa., through Turner Construction Co., New York, to Bethlehem Steel Co., Bethlehem, Pa.
120 tons, seafood distribution center, Philadelphia, through the M. & L. Construction Co.,

general contractor, to American Steel Engineering Co., Philadelphia.

REINFORCING BARS PENDING

- 750 tons, powerhouse extension, Ft. Peck, Montana; bids to the U. S. Engineer, Riverdale, North Dakota, Oct. 16.
600 tons, North High School, Seattle; bids in.
525 tons, penstocks, tunnel, tanks, etc., Ft. Peck, Mont.; bids to the U. S. Engineer, Riverdale, North Dakota, Aug. 28.
225 tons, Washington State undercrossing, Pierce County; general contract to Ostruske-Murphy Inc., Tacoma, Wash., at \$162,000.
175 tons, Washington State, three concrete bridges, Pierce County; general contract to Ponders, Woodworth & Co. Inc., Tacoma, Wash., at \$1,459,644.
150 tons, two Montana highway spans, Granite and Powell counties, general contract to Johnson & Pederson, Minneapolis, Minn., low at \$281,727.
143 tons, state bridgework, Delaware County, Pennsylvania, bids Aug. 15; also 292 tons of structural steel.
127 tons, state bridgework, Bucks County, Pennsylvania; bids Aug. 15.
100 tons, Montana, two highway spans, Mineral County; general contract to Pew Construction Co., Missoula, Mont., low at \$135,668.
100 tons, school construction, Bellingham, Wash.; bids in.

PLATES . . .

PLATES PLACED

- 4410 tons, high tensile, grade HY-80, black, naval shipyard, Portsmouth, N. H., to Lukens Steel Co., Coatesville, Pa.

PLATES PENDING

- Unstated, 13,000 ft of 30-in. supply pipe, including a crossing of the Willamette River; steel enamel or concrete cylinders; bids to Byron Price, superintendent, Eugene, Oreg., Aug. 7.

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By Albert Portevin

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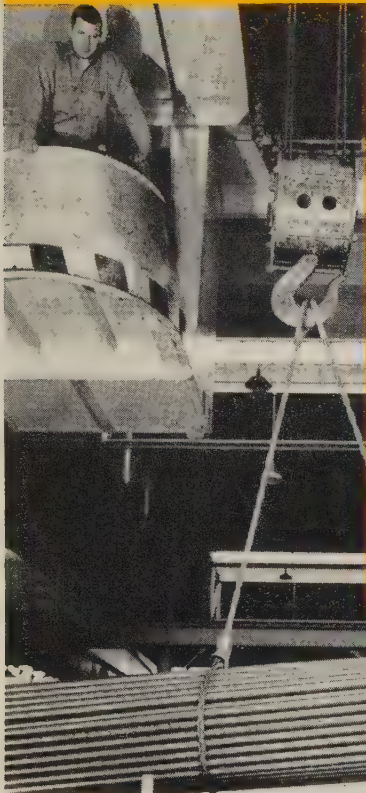
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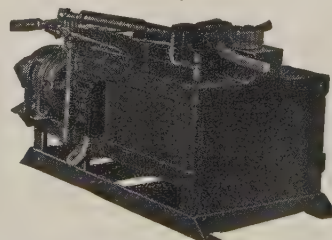
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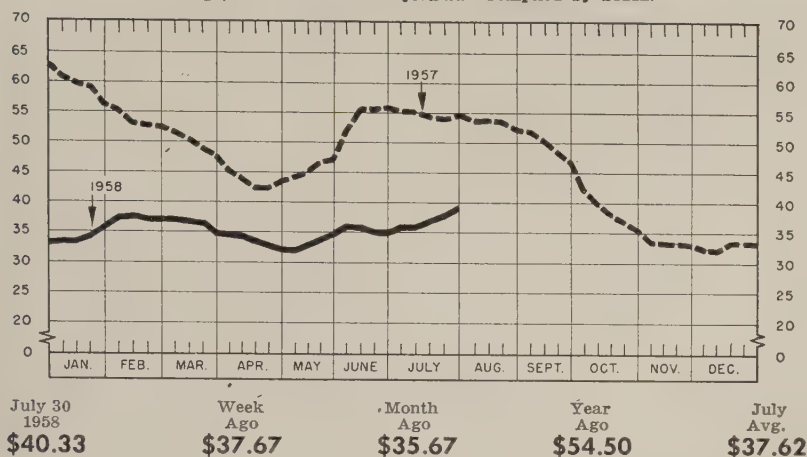
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STEELMAKING SCRAP PRICE COMPOSITE

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania—Compiled by STEEL.



Scrap Advancing with Ingot Rate

STEEL's composite on the prime grade rises to \$40.33, up \$2.66 a ton. Mill buying continues restricted but shows signs of opening up as steel market activity gains

Scrap Prices, Page 142

Chicago—The district scrap market continues to boil, and open hearth and electric furnace grades have mounted to the highest price level this year. In a little over two months, prices on leading grades have swept upward at least \$8 a ton. Two factors are responsible—a better midyear steelmaking rate than had been expected and a none-too-plentiful supply. Plant closings for vacations have reduced scrap generation sharply. Scrap consumption is bound to increase, with higher steelmaking rates a certainty in the fourth quarter. Integrated mills will likely use more hot metal in their charges, and one mill has already put one blast furnace back into production.

Pittsburgh — Prices are edging higher amidst speculation that Fisher Body bundles will bring as much as \$45 a ton, up \$5 to \$6 from a month ago. Dealers are holding onto their scrap until the auto lists close. Strength at Cleveland and the Valley is influencing bullishness here, and prices on the steel grades are nominally higher.

Cleveland — Buying by Valley mills has confirmed the higher prices on the No. 1 grades of heavy melting established a week ago when a local mill placed a representative tonnage. The market is bullish, though buying is not particularly active. Most of the recent activity has been in the major steelmaking grades, but prices on the other grades are up sympathetically. Bids on auto lists are expected to put No. 1 factory bundles at \$44-\$45. The auto lists are reported relatively light.

Philadelphia—The scrap market is strong, with sellers having to pay more in covering on old orders than they received. Contributing to the strength: Schuman Plan countries purchased about 140,000 tons of steel scrap, No. 1 grades and No. 2 heavy melting steel, for delivery through August and September.

More active steel mill operations, and higher prices in the Midwest also are factors for strength. Practically all domestic prices here are nominal; low phos structurals and plate are higher on trading at \$42-\$43. Strength in turnings is indi-

cated by the purchase by a dealer of 150 tons of machine shop turnings at \$18.58, f.o.b. Frankford, Pa. This means the equivalent of around \$21.50-\$22, delivered, consumer, plus profit.

New York — Brokers have advanced buying prices on No. 1 heavy melting steel and No. 1 bundles to \$31-\$32, and on No. 2 heavy melting steel to \$29. Prices on all other steel grades are unchanged, but stainless scrap prices have been advanced \$10 a ton on 18-8 sheets, clips and solids to \$165-\$170, on purchasing by a Pittsburgh mill. Other stainless grades are steady.

Detroit—July auto lists closed last Wednesday with low tonnages bringing increased dealer activity on open market speculation. Chrysler put up 158 cars of No. 1 busheling, bundles, and plates—roughly 25 per cent less than the 200 cars it offered a month ago. (This excludes Chrysler's Ohio stamping plants.)

As a result of the low tonnages, dealers are talking about \$38-\$40 for No. 1 bundles, although mills have said that if prices got too high they'd back off, which would put brokers in a ticklish spot. Broker scrap piles are heavy.

Houston—The leading mill here has offered to buy a limited tonnage of scrap at prices unchanged from those paid in July. Earlier, it had extended shipping dates on its July purchase into August. Its inventory is estimated sufficient for 98 days of consumption.

An exporter continues to buy Gulf Coast scrap for shipment to Spain at prices in line with those paid by the Texas mill. Mexican demand

(Please turn to Page 147)

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Iron and Steel Scrap

Consumer prices per gross ton, STEEL, July 30, 1958. Changes

except as otherwise noted, including brokers' commission, as reported to shown in italics.

STEELMAKING SCRAP COMPOSITE

July 30	\$40.33
July 23	37.67
July Avg.	37.62
Aug. 1957	53.33
Aug. 1953	43.40

Based on No. 1 heavy melting grade at Pittsburgh, Chicago, and eastern Pennsylvania.

PITTSBURGH

No. 1 heavy melting...	41.00-42.00†
No. 2 heavy melting...	33.00-34.00
No. 1 dealer bundles...	41.00-42.00†
No. 2 bundles	31.00-32.00
No. 1 busheling	41.00-42.00†
No. 1 factory bundles...	44.00-45.00†
Machine shop turnings...	16.00-17.00
Mixed borings, turnings...	16.00-17.00
Short shovel turnings...	20.00-21.00
Cast iron borings	21.00-21.00
Cut structurals:	
2 ft and under	42.00-43.00
3 ft lengths	40.00-41.00
Heavy turnings	35.00-36.00
Punchings & plate scrap	42.00-43.00
Electric furnace bundles	42.00-43.00

Cast Iron Grades

No. 1 cupola	40.00-41.00
Stove plate	40.00-41.00
Unstripped motor blocks	23.00-24.00
Clean auto cast	39.00-40.00
Drop broken machinery	49.00-50.00

Railroad Scrap

No. 1 R.R. heavy melt.	43.00-44.00
Rails, 2 ft and under...	54.00-55.00
Rails, 18 in. and under	55.00-56.00
Random rails	51.00-52.00
Railroad specialties	48.00-49.00
Angles, splice bars	44.00-45.00
Rails, rerolling	58.00-59.00

Stainless Steel Scrap

18-8 bundles & solids...	190.00-195.00
18-8 turnings	100.00-105.00
430 bundles & solids...	110.00-115.00
430 turnings	50.00-52.00

CHICAGO

No. 1 hvy melt., indus..	43.00-44.00
No. 1 hvy melt., dealer	41.00-42.00
No. 2 heavy melting...	36.00-37.00
No. 1 factory bundles ..	48.00-49.00
No. 1 dealer bundles ..	42.00-43.00
No. 2 bundles	29.00-30.00
No. 1 busheling, indus..	43.00-44.00
No. 1 busheling, dealer	41.00-42.00
Machine shop turnings...	21.00-22.00
Mixed borings, turnings	23.00-24.00
Short shovel turnings...	23.00-24.00
Cast iron borings	23.00-24.00
Cut structurals, 3 ft ..	47.00-48.00
Punchings & plate scrap	48.00-49.00

Cast Iron Grades

No. 1 cupola	44.00-45.00
Stove plate	42.00-43.00
Unstripped motor blocks	35.00-36.00
Clean auto cast	50.00-51.00
Drop broken machinery	50.00-51.00

Railroad Scrap

No. 1 R.R. heavy melt..	46.00-47.00
R.R. malleable	56.00-57.00
Rails, 2 ft and under...	59.00-60.00
Rails, 18 in. and under	60.00-61.00
Angles, splice bars	54.00-55.00
Axles	65.00-66.00
Rails, rerolling	61.00-62.00

Stainless Steel Scrap

18-8 bundles & solids...	180.00-185.00
18-8 turnings	95.00-100.00
430 bundles & solids...	95.00-100.00
430 turnings	50.00-55.00

YOUNGSTOWN

No. 1 heavy melting...	43.00-44.00
No. 2 heavy melting...	30.00-31.00†
No. 1 busheling	43.00-44.00
No. 1 bundles	43.00-44.00
No. 2 bundles	30.00-31.00†
Machine shop turnings...	12.00-13.00
Short shovel turnings...	17.00-18.00
Cast iron borings	17.00-18.00
Low phos.	45.00-46.00
Electric furnace bundles	45.00-46.00

Railroad Scrap

No. 1 R.R. heavy melt..	44.00-45.00
-------------------------	-------------

CLEVELAND

No. 1 heavy melting...	38.00-39.00
No. 2 heavy melting...	26.00-27.00
No. 1 factory bundles...	41.00-42.00
No. 1 bundles	38.00-39.00
No. 2 bundles	28.00-29.00
No. 1 busheling	38.00-39.00
Machine shop turnings...	9.00-10.00
Short shovel turnings...	13.00-14.00
Mixed borings, turnings	13.00-14.00
Cast iron borings	13.00-14.00
Cut foundry steel	37.00-38.00

Cut structurals, plates

2 ft and under

Low phos, punchings & plate

Alloy free, short shovel turnings

Electric furnace bundles

Cast Iron Grades

No. 1 cupola	43.00-44.00
Charging box cast	34.00-35.00
Heavy breakable cast ..	34.00-35.00
Stove plate	45.00-46.00
Unstripped motor blocks	26.00-27.00
Brake shoes	34.00-35.00
Clean auto cast	46.00-47.00
Burnt cast	31.00-32.00
Drop broken machinery	49.00-50.00

Railroad Scrap

R.R. malleable	60.00-61.00
Rails, 2 ft and under...	57.00-58.00
Rails, 18 in. and under	58.00-59.00
Rails, random lengths...	50.00-51.00
Cast steel	47.00-48.00
Railroad specialties	49.00-50.00
Uncut tires	41.00-42.00
Angles, splice bars	48.00-49.00
Rails, rerolling	54.00-55.00

Stainless Steel

(Brokers' buying prices; f.o.b. shipping point)

18-8 bundles, solids...	170.00-175.00
18-8 turnings	95.00-100.00
430 clips, bundles...	80.00-90.00
430 turnings	40.00-50.00

ST. LOUIS

(Brokers' buying prices)

No. 1 heavy melting...	33.00
No. 2 heavy melting...	30.00
No. 1 bundles	34.00
No. 2 bundles	23.00
No. 1 busheling	33.00
Machine shop turnings...	16.00†
Short shovel turnings...	18.00†

Cast Iron Grades

No. 1 cupola	44.00
Charging box cast	36.00
Heavy breakable cast...	35.00
Unstripped motor blocks	36.00
Clean auto cast	44.00
Stove plate	44.00

Railroad Scrap

No. 1 R.R. heavy melt.	45.00
Rails, 18 in. and under	50.00
Rails, random lengths...	48.00
Rails, rerolling	60.00
Angles, splice bars	47.00

BIRMINGHAM

No. 1 heavy melting...	33.00-34.00
No. 2 heavy melting...	27.00-28.00
No. 1 bundles	33.00-34.00
No. 2 bundles	20.00-21.00
No. 1 busheling	33.00-34.00
Cast iron borings	12.00-13.00
Machine shop turnings...	21.00-22.00
Short shovel turnings...	22.00-23.00
Bars, crops and plates...	42.00-43.00
Structurals & plates ..	40.00-41.00
Electric furnace bundles	34.00-35.00

Electric furnace:

2 ft and under

3 ft and under

Cast Iron Grades

No. 1 cupola	52.00-53.00
Stove plate	51.00-52.00
Unstripped motor blocks	41.00-42.00
Charging box cast	22.00-23.00
No. 1 wheels	38.00-39.00

Railroad Scrap

No. 1 R.R. heavy melt.	35.00-36.00
Rails, 18 in. and under	49.00-50.00
Rails, rerolling	58.00-59.00
Rails, random lengths...	45.00-46.00
Angles, splice bars	43.00-44.00

PHILADELPHIA

No. 1 heavy melting...	36.00†
No. 2 heavy melting...	32.00†
No. 1 bundles	36.00†
No. 2 bundles	24.00†
No. 1 busheling	36.00†
Electric furnace bundles	38.00†
Mixed borings, turnings	19.00†
Short shovel turnings...	21.00†
Machine shop turnings...	19.00†
Heavy turnings	30.00†
Structural & plate	42.00-43.00
Couplers, springs, wheels	43.50
Rail crops, 2 ft & under	55.00-56.00

Cast Iron Grades

No. 1 cupola	38.00-40.00
Heavy breakable cast...	41.00
Malleable	58.00-59.00
Drop broken machinery	47.00-48.00

NEW YORK

(Brokers' buying prices)

No. 1 heavy melting...	31.00-32.00
No. 2 heavy melting...	29.00
No. 1 bundles	31.00-32.00
No. 2 bundles	16.00-17.00
Machine shop turnings...	8.00-9.00
Mixed borings, turnings	9.00-10.00
Short shovel turnings...	11.00-12.00
Low phos (structurals & plates)	34.00

Cast Iron Grades

No. 1 cupola	35.00-36.00
Unstripped motor blocks	24.00-25.00
Heavy breakable	33.00-34.00

Stainless Steel

18-8 sheets, clips, solids	165.00-170.00
18-8 borings, turnings	50.00-55.00
410 sheets, clips, solids	50.00-55.00
430 sheets, clips, solids	60.00-65.00

BUFFALO

No. 1 heavy melting...	27.00-28.00
No. 2 heavy melting...	23.00-24.00
No. 1 bundles	27.00-28.00
No. 2 bundles	21.00-22.00
No. 1 busheling	27.00-28.00
Mixed borings, turnings	13.00-14.00
Machine shop turnings...	10.00-11.00
Short shovel turnings...	14.00-15.00
Cast iron borings	13.00-14.00
Low phos, structurals and plate, 5 ft and under	32.00-33.00
2 ft and under	36.00-37.00

Cast Iron Grades

No. 1 cupola	38.00-39.00
No. 1 machinery	42.00-43.00

Railroad Scrap

Rails, random lengths...	46.00-47.00
Rails, 3 ft and under...	52.00-53.00
Railroad specialties ..	36.00-37.00

CINCINNATI

(Buyers' buying prices; f.o.b. shipping point)

No. 1 heavy melting...	36.00-37.00
No. 2 heavy melting...	29.50-30.50
No. 1 bundles	36.00-37.00
No. 2 bundles	24.00-25.00
No. 1 busheling	36.00-37.00
Machine shop turnings...	14.00-15.00
Mixed borings, turnings	14.50-15.50
Short shovel turnings...	16.50-17.50
Cast iron borings	14.00-15.00
Low phos. 18 in.	40.00-41.00

Cast Iron Grades

No. 1 cupola	40.00-41.00
Heavy breakable cast...	32.00-33.00
Charging box cast	32.00-33.00
Drop broken machinery	44.00-45.00

Railroad Scrap

No. 1 R.R. heavy melt..	40.00-41.00
Rails, 18 in. and under	53.00-54.00
Rails, random lengths...	43.00-44.00

HOUSTON

(Brokers' buying prices; f.o.b. cars)

No. 1 heavy melting...	32.00
No. 2 heavy melting...	30.00
No. 1 bundles	32.00
No. 2 bundles	21.00†
Machine shop turnings...	14.00
Short shovel turnings...	17.00
Low phos. plates	38.50†

Cast Iron Grades

No. 1 cupola	42.00
Heavy breakable	30.00†
Unstripped motor blocks	36.00

Railroad Scrap

No. 1 R.R. heavy melt	34.00
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BOSTON

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting...	23.00-23.50
No. 2 heavy melting...	19.00-19.50
No. 1 bundles	23.00-23.50
No. 2 bundles	15.00-15.50
No. 1 busheling	23.00-23.50
Machine shop turnings...	6.00-7.00
Mixed borings, turnings	6.00-7.00
Short shovel turnings...	7.00-8.00
No. 1 cast	28.00-29.00
Mixed cupola cast	27.00-28.00
No. 1 machinery cast..	36.00-38.00

DETROIT

(Brokers' buying prices; f.o.b. shipping point)

No. 1 heavy melting...	31.00-32.00
No. 2 heavy melting...	23.00-24.00
No. 1 bundles	33.00-34.00
No. 2 bundles	21.00-22.00
No. 1 busheling	32.00-33.00
Machine shop turnings...	9.00-10.00
Mixed borings, turnings	10.00-11.00
Short shovel turnings...	11.00-12.00
Punchings & plate	32.00-33.00

Cast Iron Grades

No. 1 cupola	39.00-40.00
Stove plate	29.00-30.00
Charging box cast	29.00-30.00
Heavy breakable	28.00-29.00
Unstripped motor blocks	16.00-17.00
Clean auto cast	38.00-39.00

SEATTLE

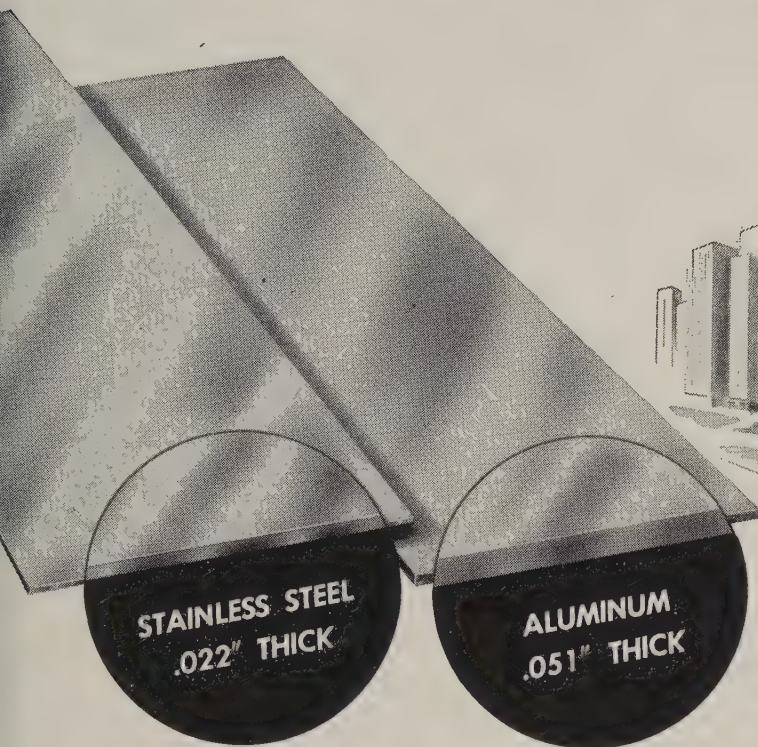
No. 1 heavy melting...	30.00†
No. 2 heavy melting...	28.00†
No. 1 bundles	22.00†
No. 2 bundles	20.00†
Machine shop turnings...	9.00-10.00†
Mixed borings, turnings	9.00-10.00†
Electric furnace No. 1.	38.00

Cast Iron Grades

No. 1 cupola	31.00
Heavy breakable cast...	28.00
Unstripped motor blocks	23.00
Stove plate (f.o.b. plant)	21.00

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Barter Program Likely

Chances are good Congress will override administration's objections and reinstate workable program. Seaton minerals plan revised again by legislators

Nonferrous Metal Prices, Pages 146 & 147

ODDS are at least 60-40 that legislation putting teeth back into the barter program (foreign origin metal is swapped for surplus U. S. agricultural products) will come out of this session of Congress.

Strong Support—On July 23, the House voted 195 to 52 to tack stronger barter provisions onto the bill for the disposal of farm surpluses, already passed by the Senate. The provisions would: 1. Prohibit the secretary of agriculture from limiting areas where barter contracts could be made. 2. Authorize U. S. processing of foreign origin ore. 3. Request the secretary of agriculture to barter up to \$500 million annually.

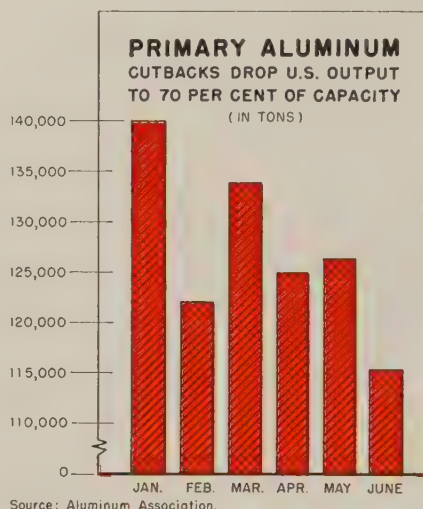
What It Means—A strong barter program would particularly aid U. S. lead and zinc companies. Reasons: 1. It would drain off surplus metal from the world market, some of which has been coming into the U. S. below the domestic price. 2. U. S. producers could bring foreign ore to this country, convert it to metal, and sell it to Uncle Sam.

Reaction—Producers have mixed emotions about reviving barter. They acknowledge that it would strengthen the world market and help buoy the shaky profit situation. On the other side of the coin, they believe barter would only postpone the industry's supply-demand problem and would stimulate production to "unrealistic levels."

Chances for Passage — The bill goes to a House-Senate conference which is expected to report out a measure acceptable to both houses. "Chances are good for passage of the House bill, with one or two compromise modifications," a Congressional source told STEEL. Observers expect the Senate to offer approval of the main barter provisions in return for guarantees disallowing "dumping" which might affect trade of "friendly" countries. House pro-

ponents point out that the Senate defeated a stronger barter proposal by only 3 votes earlier this year.

The administration is on record as opposing barter. But strong segments in both houses are irked by



Agriculture Department interpretations that make the program nearly inoperable. Says one House source: "We hope to take the bartering authority away from the secretary of agriculture and place it in Congress where it belongs."

Seaton Plan Revised

Second guessing House sentiment on Interior Secretary Fred Seaton's

plan to stabilize lead, zinc, acid-grade fluorspar, and tungsten, and stockpile copper, the Interior & Insular Affairs Committee refused to go along with recommendations made last week by its own Mines & Mining Subcommittee (STEEL, July 28, p. 36). The full committee voted to resume subsidy payments of 3.9 cents for lead and 2.9 cents for zinc, instead of the 4 cents recommended by the subcommittee. (Both Interior and State Departments thought 4 cents too high.)

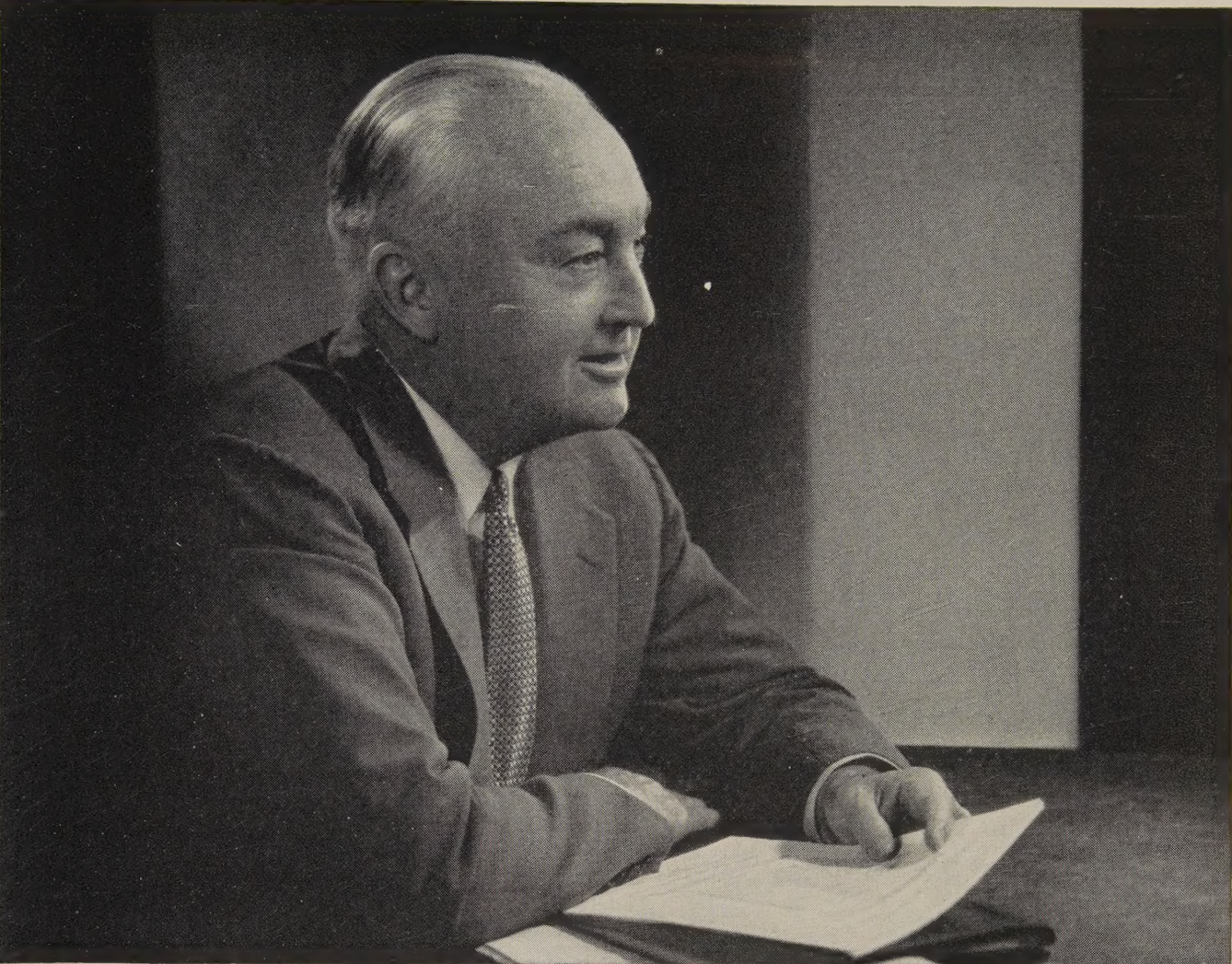
Production bonuses were O.K.'d for beryl, chromite, and columbium-tantalum, but the bonus for chromite was cut from \$46 a ton to \$35, by a vote of 13 to 7. The committee accepted the subcommittee recommendation to kill the \$350 million borrowing authority asked for in the Senate version of the bill, but instead of allowing an open ended authority for appropriation, it set a limit of \$650 million to be spent on the five-year program. (If the bill is passed by both houses, another bill providing the money must be passed.)

Finally, Interior will be required to report every six months to the proper appropriation and mineral committees of both houses on the progress of the program. The committee passed the bill (S. 4036) by a vote of 17 to 4 and sent it to the House, refusing to consider arguments that it was too limited in its approach to gain full House support. Even if the two versions are worked out in conference between the two bodies, several committee members voiced the opinion that it may be vetoed by President Eisenhower.

NONFERROUS PRICE RECORD

	Price July 29	Last Change	Previous Price	June Avg	May Avg	July, 1957 Avg
Aluminum .	24.00	Apr. 1, 1958	26.00	24.000	24.000	25.000
Copper	26.50	July 18, 1958	26.00-26.50	25.400	24.433	28.822
Lead	10.80	July 1, 1958	11.30	11.040	11.512	13.800
Magnesium .	35.25	Aug. 13, 1956	33.75	35.250	35.250	35.250
Nickel	74.00	Dec. 6, 1956	64.50	74.000	74.000	74.000
Tin	96.25	July 25, 1958	96.00	94.701	94.510	96.576
Zinc	10.00	July 1, 1957	10.50	10.000	10.000	10.000

Quotations in cents per pound based on: COPPER, mean of primary and secondary, deld. Conn. Valley; LEAD, common grade, deld. St. Louis; ZINC, prime western, E. St. Louis; TIN, Straits, deld. New York; NICKEL, electrolytic cathodes, 99.9%, base size at refinery, unpacked; ALUMINUM, primary pig, 99.5+%, f.o.b. shipping point; MAGNESIUM, pig, 99.8%, Velasco, Tex.



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Nonferrous Metals

Cents per pound, carlots except as otherwise noted.

PRIMARY METALS AND ALLOYS

Aluminum: 99.5%, pigs, 24.00; ingots, 26.10, 30.00 labor more, f.o.b. shipping point. Freight allowed on 500 lb or more.

Aluminum Alloy: No. 13, 27.90; No. 43, 27.70; No. 195, 28.70; No. 214, 29.50; No. 356, 27.90, 30-lb ingots.

Antimony: R.M.M. brand, 99.5%, 29.00; Lone Star brand, 29.50; f.o.b. Laredo, Tex., in bulk. Foreign brands, 99.5%, 23.50-24.50, New York, duty paid, 10,000 lb or more.

Beryllium: 97% lump or beads, \$71.50 per lb, f.o.b. Cleveland or Reading, Pa.

Beryllium Aluminum: 5% Be, \$74.75 per lb of contained Be, with balance as Al at market price, f.o.b. shipping point.

Beryllium Copper: 3.75-4.25% Be, \$43 per lb of contained Be, with balance as Cu at market price on shipment date, f.o.b. shipping point.

Bismuth: \$2.25 per ton, ton lots.

Cadmium: Sticks and bars, \$1.55 per lb deld. Cobalt: 97.99%, \$2.00 per lb for 550-lb keg; \$2.02 per lb for 100 lb case; \$2.07 per lb under 100 lb.

Columbium: Powder, \$55-85 per lb, nom.

Copper: Electrolytic, 26.50 deld.; custom smelters, 26.50; lake, 26.50 deld.; fire refined, 26.25 deld.

Germanium: First reduction, \$179.17-197.31 per lb; intrinsic grade, \$197.31-220 per lb, depending on quantity.

Gold: U. S. Treasury, \$35 per oz.

Indium: 99.9%, \$2.25 per troy oz.

Iridium: \$70-80 nom. per troy oz.

Lead: Common, 10.80; chemical, 10.90; corroding, 10.90, St. Louis. New York basis, add 0.20.

Lithium: 98 + %, 50-100 lb, cups or ingots, \$12; rod, \$15; shot or wire, \$16. 100-500 lb, cups or ingots, \$10.50; rod, \$14; shot or wire, \$15, f.o.b. Minneapolis.

Magnesium: Pig, 35.25; ingot, 36.00 f.o.b. Velasco, Tex.; 12 in. thick, 59.00 f.o.b. Madison, Ill.

Magnesium Alloys: AZ91A (diecasting), 40.75 deld.; AZ63A, AZ92A, AZ91C (sand casting), 40.75, f.o.b. Velasco, Tex.

Mercury: Open market, spot, New York, \$230-235 per 76-lb flask.

Molybdenum: Unalloyed turned extrusions, 3.75-5.75 in. round, \$9.60 per lb in lots of 2500 lb or more, f.o.b. Detroit.

Nickel: Electrolytic cathodes, sheets (4 x 4 in. and larger), unpacked, 74.00; 10-lb pigs, unpacked, 78.25; "XXX" nickel shot, 79.50; "F" nickel shot for addition to cast iron, 74.50; "F" nickel, 5 lb ingots in kegs for addition to cast iron, 75.50. Prices f.o.b. Port Colborne, Ont., including import duty, New York basis, add 1.01. Nickel oxide sinter at Buffalo, New York, or other established U. S. points of entry, contained nickel, 69.60.

Osmium: \$70-100 per troy oz nom.

Palladium: \$15-19 per troy oz.

Platinum: \$62-65 per troy oz from refineries.

Radium: \$16-21.50 per mg radium content, depending on quantity.

Rhodium: \$118-125 per troy oz.

Ruthenium: \$45-55 per troy oz.

Selenium: \$7.00 per lb, commercial grade.

Silver: Open market 88.625 per troy oz.

Sodium: 17.00 c.i.; 19.00-19.50 l.c.l.

Tantalum: Rod, \$60 per lb; sheet, \$55 per lb.

Tellurium: \$1.65-1.85 per lb.

Thallium: \$7.50 per lb.

Tin: Straits, N. Y., spot and prompt, 95.75.

Titanium: Sponge, 99.3 + % grade A-1, ductile (0.3% Fe max.), 2.05; grade A-2 (0.5% Fe max.), \$1.85 per lb.

Tungsten: Powder, 98.8%, carbon reduced, 1000-lb lots, \$3.15 per lb nom., f.o.b. shipping point; less than 1000 lb, add 15.00; 99 + % hydrogen reduced, \$.85.

Zinc: Prime Western, 10.00; brass special, 10.25; intermediate, 10.50, East St. Louis, freight allowed over 0.50 per lb. New York basis, add 0.50. High grade, 11.00; special high grade, 11.25 deld. Diecasting alloy ingot No. 3, 12.75; No. 2, 13.25; No. 5, 13.00 deld.

Zirconium: Sponge, commercial grade, \$5-10 per lb.

(Note: Chromium, manganese, and silicon metals are listed in ferroalloy section.)

SECONDARY METALS AND ALLOYS

Aluminum Ingot: Piston alloys, 22.50-24.00; No. 12 foundry alloy (No. 2 grade), 21.25-21.50; 5% silicon alloy, 0.60 Cu max., 24.00-24.25; 13 alloy 0.60 Cu max., 24.00-24.25; 195 alloy, 24.25-25.50; 103 alloy, 21.75. Steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 22.25; grade 2, 21.25; grade 3, 20.00; grade 4, 17.25.

Brass Ingot: Red brass, No. 115, 27.00; tin bronze, No. 225, 36.00; No. 245, 30.75; high-leaded tin bronze, No. 305, 31.25; No. 1 yellow, No. 405, 22.75; manganese bronze, No. 421, 24.50.

Magnesium Alloy Ingot: AZ63A, 37.50; AZ91B, 37.50; AZ91C, 41.25; AZ92A, 37.50.

NONFERROUS PRODUCTS

BERYLLIUM COPPER

(Base prices per lb, plus mill extras, 2000 to 5000 lb; nom. 1.9% Be alloy.) Strip, \$1.80, f.o.b. Temple, Pa., or Reading, Pa.; rod, bar, wire, \$1.78, f.o.b. Temple, Pa.

COPPER WIRE

Bare, soft, f.o.b. eastern mills, 20,000-lb lots, 31.855; l.c.l., 32.48. Weatherproof, 20,000-lb lots, 33.66, l.c.l., 34.41, before quantity discounts.

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh.) Sheets, full rolls, 140 sq ft or more, \$15.50 per cwt; pipe, full coils, \$15.50 per cwt; traps and bends, list prices plus 30%.

TITANIUM

(Prices per lb, 10,000 lb and over, f.o.b. mill.) Sheets and strip, \$8.50-15.95; sheared mill plate, \$6.00-9.50; wire, \$6.50-11.00; forging billets, \$4.10-4.35; hot-rolled and forged bars, \$5.25-6.35.

ZINC

(Prices per lb, c.i., f.o.b. mill.) Sheets, 24.00; ribbon zinc in coils, 20.50; plates, 19.00.

ZIRCONIUM

Plate, \$12.50-19.20; H.R. strip, \$12.50-22.90; C.R. strip, \$15.90-31.25; forged or H.R. bars, \$11.00-17.40.

NICKEL, MONEL, INCONEL

	"A" Nickel	Monel	Inconel
Sheets, C.R.	126	106	128
Strips, C.R.	124	108	138
Plate, H.R.	120	105	121
Rod, Shapes, H.R.	107	89	109
Seamless Tubes	157	129	200

ALUMINUM

Sheets: 1100, 3003, and 5005 mill finish (30,000 lb base; freight allowed).

Thickness Range, Inches	Flat Sheet	Coiled Sheet
0.249-0.136	41.10-45.60	.....
0.135-0.096	41.60-46.70	.....
0.125-0.096	.....	38.50-39.10
0.096-0.077	42.30-48.50	38.60-39.30
0.076-0.061	42.90-50.80	38.80-40.00
0.060-0.048	43.60-53.10	39.40-41.10
0.047-0.038	44.20-55.90	39.90-32.50
0.037-0.030	44.60-60.90	40.30-44.30
0.029-0.024	45.20-52.70	40.60-45.00
0.023-0.019	46.20-56.10	41.70-43.40
0.018-0.017	47.00-53.40	42.30-44.00
0.016-0.015	47.90-54.30	43.10-44.80
0.014	48.90	44.10-45.80
0.013-0.012	50.10	44.80
0.011	51.10	46.00
0.010-0.0095	52.60	47.40
0.009-0.0085	53.90	48.90
0.008-0.0075	55.50	50.10
0.007	57.00	51.60
0.006	58.60	53.00

BRASS MILL PRICES

MILL PRODUCTS a

	Sheet, Strip, Plate	Rod	Wire	Seamless Tubes
Copper	49.63b	46.86c	.....	49.82
Yellow Brass	43.57	30.28d	44.11	46.48
Low brass, 80%	46.03	45.97	46.57	48.84
Red Brass, 85%	46.89	46.83	47.43	49.70
Com. Bronze, 90%	48.30	48.24	48.84	50.86
Manganese Bronze	51.52	45.74	56.18	.....
Muntz Metal	45.95	41.76	.....	.....
Naval Brass	47.83	42.14	54.89	50.99
Silicon Bronze	54.37	53.56	54.41	56.29
Nickel Silver, 10%	58.82	61.15	61.15	.....
Phos. Bronze, A-5%	68.59	69.09	69.09	70.27

a. Cents per lb, f.o.b. mill; freight allowed on 500 lb or more. b. Hot-rolled. c. Cold-drawn. d. Free cutting. e. Prices in cents per lb for less than 20,000 lb, f.o.b. shipping point. On lots over 20,000 lb at one time, of any or all kinds of scrap, add 1 cent per lb.

ALUMINUM (continued)

Plates and Circles: Thickness 0.250-3 in., 24-60 in. width or diam., 72-240 in. lengths.

Alloy	Plate Base	Circle Base
1100-F, 3003-F	41.70	46.50
5050-F	42.80	47.60
3004-F	43.80	49.50
5052-F	44.40	50.20
6061-T6	44.90	51.00
2024-T4	48.60	55.40
7075-T6*	56.40	64.00

*24-48 in. width or diam., 72-180 in. lengths.

Screw Machine Stock: 30,000 lb base. Diam. (in.) or Round Hexagonal across flats 2011-T3 2017-T4 2011-T3 2017-T4

Drawn				
0.125	76.20	73.20	.....	.....
0.156	64.20	61.40	.....	.....
0.172	.....	61.40	.....	.....
0.188	64.20	61.40	.....	79.60
0.203	64.20	61.40	.....	.....
0.219-0.234	61.00	59.50	.....	.....
0.250	61.00	59.50	88.40	75.90
0.266-0.281	61.00	59.50	.....	.....
0.313	61.00	59.50	81.40	72.20
0.344	60.50	.....	81.40	.....

Cold-Finished				
0.375-0.547	60.50	59.30	72.80	67.80
0.563-0.688	60.50	59.30	69.10	63.50
0.719	.....	57.70	.....	.....
0.750-1.000	59.00	57.70	62.90	59.70
1.063	59.00	57.70	.....	57.60
1.250-1.500	56.60	55.40	60.80	57.60

Rolled				
1.563	55.00	53.70	.....	.....
1.625-2.000	54.30	52.90	59.60	55.50
2.063	.....	51.40	.....	.....
2.125-2.500	52.80	51.40	.....	55.50
2.500-3.000	51.20	49.70	.....	55.50
3.250-3.375	.....	49.70	.....	.....

Forging Stock: Round, Class 1, random lengths, diam. 0.688-8 in., "F" temper; 2014, 41.50-54.30; 6061, 40.90-54.30; 7075, 42.90-56.30; 7070, 43.40-56.80.

Pipe: ASA schedule 40, alloy 6063-T6, standard lengths, plain ends, 90,000 lb base, dollars per 100 ft. Nominal pipe sizes: 3/4 in., 18.60; 1 in., 29.35; 1 1/4 in., 39.75; 1 1/2 in., 47.50; 2 in., 57.40; 4 in., 157.60; 6 in., 282.95; 8 in., 425.80.

Extruded Solid Shapes:

Factor	Alloy 6063-T5	Alloy 6062-T6
9-11	42.00-43.50	58.60-62.80
12-14	42.00-43.50	59.30-63.80
15-17	42.00-43.50	60.50-65.50
18-20	42.50-44.00	62.50-68.10

MAGNESIUM

Sheet and Plate: AZ31B standard grade, 0.32 in., 103.10; .081 in., 77.90; .125 in., 70.40; .188 in., 69.00; .250-2.0 in., 67.90. AZ31B spec. grades, .032 in., 171.30; .081 in., 108.70; .125 in., 98.10; .188 in., 95.70; .250-2.00 in., 93.30. Tread plate, 60-192 in. lengths, 24-72 in. widths; .125 in., 74.90; .188 in., 71.70-72.70; .25-.75 in., 70-60-71.60. Tooling plate, .25-3.0 in., 73.00.

Extruded Solid Shapes:

Factor	Com. Grade (AZ31B)	Spec. Grade (AZ31B)
6-8	69.60-72.40	84.60-87.40
12-14	70.70-73.00	85.70-88.00
24-26	75.60-76.30	90.60-91.30
36-38	89.20-90.30	104.20-105.30

NONFERROUS SCRAP

DEALER'S BUYING PRICES

(Cents per pound, New York, in ton lots.)
Copper and Brass: No. 1 heavy copper and wire, 19.75-20.25; No. 2 heavy copper and wire, 18.00-18.50; light copper, 16.00-16.50; No. 1 composition red brass, 16.00-16.50; No. 1 com-

SCRAP ALLOWANCES e

(Based on copper at 26.50c)

	Clean Rod	Clean Turnings
22.500	22.500	21.750
17.000	16.750	15.250
19.000	18.750	18.250
19.750	19.500	19.000
20.625	20.375	19.875
15.625	15.375	14.875
15.875	15.625	15.125
15.625	15.375	14.875
22.125	21.875	21.125
22.000	21.750	21.000
23.375	23.125	22.125

positions turnings, 15.00-15.50; new brass clip-pings, 13.50-14.00; light brass, 9.50-10.00; heavy yellow brass, 11.00-11.50; new brass rod ends, 11.50-12.00; auto radiators, unsweated, 12.00-12.50; cocks and faucets, 13.00-13.50; brass pipe, 13.00-13.50.

Lead: Heavy, 6.75-7.00; battery plates, 2.50-2.75; linotype and stereotype, 9.25-9.75; electrotype, 7.50-8.00; mixed babbitt, 9.00-9.50.

Monel: Clippings, 28.00-29.00; old sheets, 25.00-26.00; turnings, 20.00-23.00; rods, 28.00-29.00.

Nickel: Sheets and clips, 42.00-45.00; rolled anodes, 42.00-45.00; turnings, 37.00-40.00; rod ends, 42.00-45.00.

Zinc: Old zinc, 3.00-3.25; new diecast scrap, 2.75-3.00; old diecast scrap, 1.50-1.75.

Aluminum: Old castings and sheets, 9.50; clean borings and turnings, 6.50; segregated low copper clips, 12.50-13.50; segregated high copper clips, 11.50-12.00; mixed low copper clips, 12.50-13.00; mixed high copper clips, 11.00-11.50.

(Cents per pound, Chicago)

Aluminum: Old castings and sheets, 10.50-11.00; clean borings and turnings, 9.50-10.00; segregated low copper clips, 16.00-16.50; segregated high copper clips, 14.50-15.00; mixed low copper clips, 15.00-15.50; mixed high copper clips, 14.00-14.50.

(Cents per pound, Cleveland)

Aluminum: Old castings and sheets, 9.00-9.50; clean borings and turnings, 6.00-6.50; segregated low copper clips, 12.50-13.00; segregated high copper clips, 11.00-11.50; mixed low copper clips, 11.50-12.00; mixed high copper clips, 10.50-11.00.

REFINERS' BUYING PRICES

(Cents per pound, carlots, delivered refinery)

Beryllium Copper: Heavy scrap, 0.020-in. and heavier, not less than 1.5 % Be, 52.50; light scrap, 47.50; turnings and borings, 32.50.

Copper and Brass: No. 1 heavy copper and wire, 22.50; No. 2 heavy copper and wire, 21.50; light copper, 19.25; refinery brass (60% copper) per dry copper content, 21.00.

INGOTMAKERS' BUYING PRICES

Copper and Brass: No. 1 heavy copper and wire, 22.50; No. 2 heavy copper and wire, 21.50; light copper, 19.25; No. 1 composition borings, 19.00; No. 1 composition solids, 19.50; heavy yellow brass solids, 13.50; yellow brass turnings, 12.50; radiators, 15.50.

PLATING MATERIALS

(F.o.b. shipping point, freight allowed on quantities)

ANODES

Cadmium: Special or patented shapes, \$1.55. **Copper:** Flat-rolled, 43.29; oval, 41.50, 5000-10,000 lb; electrodeposited, 35.25, 2000-5000 lb lots; cast, 37.75, 5000-10,000 lb quantities.

Nickel: Depolarized, less than 100 lb, 114.25; 100-499 lb, 112.00; 500-4999 lb, 107.50; 5000-29,999 lb, 105.25; 30,000 lb, 103.00. Carbonized, deduct 3 cents a lb.

Tin: Bar or slab, less than 200 lb, 114.50; 200-499 lb, 113.00; 500-999 lb, 112.50; 1000 lb or more, 112.00.

Zinc: Balls, 16.00; flat tops, 16.00; flats, 19.25; ovals, 18.50; ton lots.

CHEMICALS

Cadmium Oxide: \$1.55 per lb in 100-lb drums. **Chromic Acid (flake):** 100-2000 lb, 31.00; 2000-10,000 lb, 30.50; 10,000-20,000 lb, 30.00; 20,000 lb or more, 29.50.

Copper Cyanide: 100-200 lb, 65.90; 300-900 lb, 63.90; 1000-19,900 lb, 61.90.

Copper Sulphate: 100-1900 lb, 14.05; 2000-5900 lb, 12.05; 6000-11,900 lb, 11.80; 12,000-22,900 lb, 11.55; 23,000 lb or more, 11.05.

Nickel Chloride: 100 lb, 48.50; 200 lb, 46.50; 300 lb, 45.50; 400-999 lb, 43.50; 10,000 lb or more, 40.50.

Nickel Sulphate: 5000-22,000 lb, 29.00; 23,000-35,900 lb, 28.50; 36,000 lb or more, 28.00.

Sodium Cyanide (Cyanobrik): 200 lb, 20.80; 400-800 lb, 19.80; 1000-19,800 lb, 18.80; 20,000 lb or more, 17.80.

Sodium Stannate: Less than 100 lb, 76.30; 100-600 lb, 67.20; 700-1900 lb, 64.50; 2000-9900 lb, 62.60; 10,000 lb or more, 61.30.

Stannous Chloride (anhydrous): 25 lb, 100.514; 100 lb, 100.465; 400 lb, 100.440; 800-19,900 lb, 100.032; 20,000 lb or more, 97.10.

Stannous Sulphate: Less than 50 lb, 100.367; 50 lb, 100.067; 100-1900 lb, 100.047; 2000 lb or more, 100.027.

Zinc Cyanide: 100-200 lb, 59.00; 300-900 lb, 57.00.

(Concluded from Page 141)

developed last week, buyers offering \$41, delivered to the border at Laredo, for No. 1 heavy melting, and \$37 for No. 2.

Dealers are bullish, but shipments are slow. Output of industrial scrap is off, and the flow of country material is thin.

Boston—Scrap prices are slightly stronger, reflecting export buying for August, and a firmer eastern Pennsylvania market. Shipments to that area are hampered by high freight charges. Light demand is being filled without drawing heavily on high-freight areas. With the 3 per cent federal tax dropped, the rate to eastern Pennsylvania is \$10.47. Buying by district consumers is slow, but borings and turnings are slightly firmer.

Birmingham—The scrap market is showing new strength although prices have not advanced as much as they have elsewhere. A large open hearth consumer bought No. 1 heavy melting at \$2 a ton above its last price. Some other items went up \$1 to \$3, while others held unchanged. Cast grades continue strong, with Anniston prices up \$1. Exporters are having difficulty covering recent commitments.

Youngstown — Two major steel-makers here last week placed orders for No. 1 heavy melting steel at \$43, \$4 above the price last paid in this

district, and \$7 above prices paid in June. Local scrap yards hold large stocks of No. 2 material. One of the major buyers of that grade hasn't been in the market for seven or eight months.

Cincinnati — Prices are stronger. Broker buying has pushed the steel-making grades up another \$1. Area mills are expected to enter the market for their August requirements. No. 1 heavy melting is quoted \$36-\$37, brokers' buying price.

Buffalo — The scrap market is bullish, but there have been no sales at higher prices. On the basis of sharp jumps in other markets, some local dealers say a \$5 a ton increase is in prospect here. A test is expected this week. Dealers have boosted their buying prices to attract supplies.

St. Louis—The local scrap market is strong, and prices are tending higher. Most broker buying is from outside the district, local agents handling sales from Minneapolis, Memphis, Nashville, and Louisville. Several cast iron grades are up \$1 a ton, including No. 1 cupola, charging box cast and stove plate. Re-rolling rails at \$60 are up \$1.75 a ton.

Los Angeles—Most scrapyards are operating on reduced schedules. Trading is sluggish, but a pickup is seen in fourth quarter when the mills are expected to operate on substantially higher levels.

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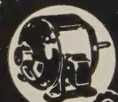
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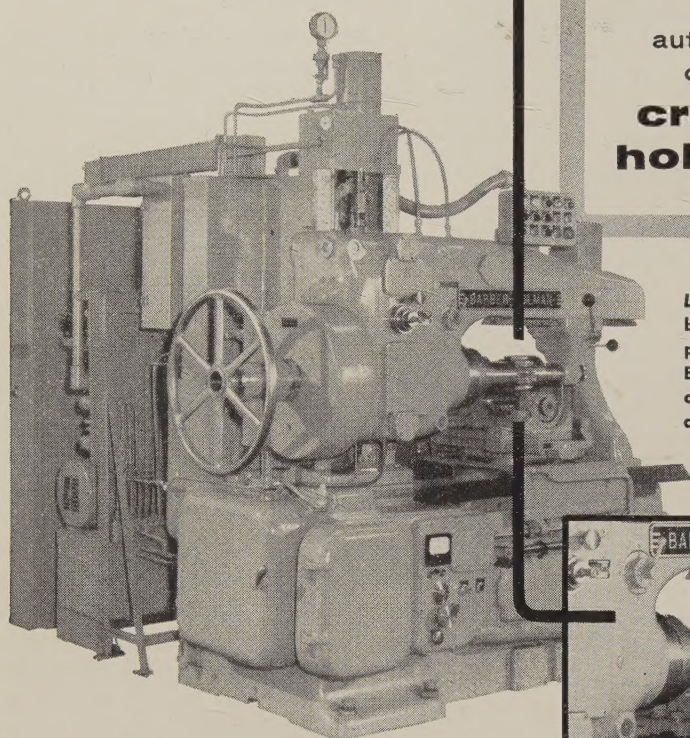


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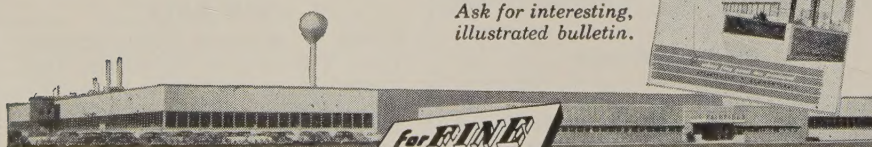
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Seattle—Signs of a revival in scrap activity are lacking. Dealers report light receipts and limited turnover. Mill consumption is expected to increase next month. Exports are inactive.

San Francisco—A cargo of steel scrap will leave here for Japan in about two weeks, making the second boatload in a month. Japan wants more material but is unwilling to pay premium prices. Domestic quotations are unchanged with no early revision in prospect.

Structural Shapes . . .

(Concluded from Page 139)

sonably active fabricating operations for several months.

Competition among fabricators is keen, and prices for fabricated structurals are unstable. No firming up in job estimates is noted despite the threat of higher prices on plain material late this summer. Original quotations are frequently shaded by tonnage shoppers, and bids often fall under engineer's estimates.

With few exceptions, fabricating shops are competitive pricewise, most of them having narrowed their margins. Shops not meeting price competition are not booking much volume.

Plain material orders, notably wide flange beams, are slightly heavier at eastern Pennsylvania mills. Leading Pittsburgh producers are not equalizing freight on shipments into New England.

Construction inquiry is being sustained largely by public projects in the Philadelphia area. Highway work is particularly prominent. Steel supply is ample.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 131

Laclede Steel Co., St. Louis, reports its reinforcing bar bookings are running ahead of those a year ago. This largely reflects increased volume business from southern market areas. Some time back the company opened a bar fabricating plant at Tampa, Fla.

Demand for wire mesh for construction also is holding up well. Laclede is booking a substantial share of tonnage in its marketing area, but anticipated volume has not been realized, apparently because the federal roadbuilding program is not in full swing.

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